

AN INTERPERSONAL PERCEPTION APPROACH TO UNDERSTANDING  
COMMUNICATION BETWEEN PHARMACISTS AND PATIENTS

By

MICHELLE TAL ASSA

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by

Michelle Tal Assa

This manuscript is dedicated to my parents, whose constant love and support have given me the opportunity to realize this goal; to my grandmother and extended family, who have always been there to encourage me; and to my friends, who have made these years in Gainesville much more enjoyable.

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Abstract of Dissertation Presented to the Graduate School  
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By

MICHELLE TAL ASSA

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Chairperson: Professor Carole Kimberlin

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The purpose of this study was to examine the relationships between pharmacists' and patients' perceptions of pharmaceutical care type services and the extent to which these perceptions are associated with the types of services offered to patients. Using an interpersonal perception approach to understanding the perceptions that pharmacists and patients have, this study examined i) pharmacists' agreement with patients, ii) pharmacists' understanding of patients, iii) patients' understanding of pharmacists, iv) pharmacists' realization about patients' understanding of them, v) patients' realization about pharmacists' understanding of them, vi) pharmacists' feeling understood and vii) patients' feeling understood. Further, this study analyzed the extent to which pharmacists' agreement, pharmacists' understanding, pharmacists' realization and pharmacists' feeling understood predicted pharmacists' reported provision of pharmaceutical care. Data were

collected via telephone interviews with 147 pharmacists practicing in the community setting, and 151 adult patients who had a prescription filled during the previous six months.

Findings revealed that, according to the interpersonal perception method, pharmacists and patients disagree on the pharmaceutical care services they believe would be beneficial for patients. Overall, pharmacists perceived the services to be more beneficial for patients than patients did. Further, pharmacists were found to misunderstand patients' perceptions regarding pharmacy services. Likewise, patients misunderstood pharmacists' perceptions. Results also indicate that pharmacists failed to realize that patients misunderstood pharmacists' perceptions of the services. Patients, on the other hand, realized that pharmacists misunderstood patients' perceptions of pharmacy services. Despite this realization, patients did not feel misunderstood by pharmacists. Finally, pharmacists felt erroneously understood by patients with regard to pharmaceutical care services.

Pharmacists' understanding of patients' perceptions and pharmacists' agreement with patients regarding the benefits of pharmaceutical care type services were found to be significant predictors of pharmacists' provision of those services. However, only a small percentage of the variability in pharmacists' behavior was explained by the model.

Based on these results, the study suggests that interventions designed to improve communication between pharmacists and patients should focus on helping pharmacists to realize their misunderstanding of patients and improving their understanding of each others' perceptions of the benefits of pharmaceutical care type services.

## CHAPTER 1 INTRODUCTION

### Problem Statement

Pharmacists, administrators, legislators and academics are calling for the profession of pharmacy to move forward toward a more clinical, patient-oriented focus in an attempt to provide better patient care and to improve patient outcomes from drug therapy. One approach is the promotion of the concept of pharmaceutical care. Under this philosophy, pharmacists work directly with patients and physicians in order to design, implement and monitor patient medication regimens (Hepler and Strand 1990). Pharmacists actively participate in decision making; monitoring and evaluating a patient's use of medication. Despite noted benefits from this process, such as improved compliance (Edwards and Pathy, 1984; Gotsch and Liguori, 1982; Sharpe and Mikeal, 1974; McKenney et al., 1973) and reduced cost of care (Knowlton and Knapp, 1994; Forstrom et al., 1990), pharmacists in the community setting have been slow to adopt this practice. Legal measures also have been aimed at expanding the type of services provided by community pharmacists, yet few changes have occurred (Rumore, Feifer and Rumore, 1995; Raisch, 1993; Alkhawajah and Eferakeya, 1992; Campbell et al., 1989). In the community setting, pharmacists continue to dispense medications and provide medication information sheets to patients in order to comply with regulations

established by the Omnibus Budget Reconciliation Act of 1990 (OBRA '90) (U.S. Government Printing Office, 1990). But many pharmacists have yet to begin collecting specific patient information or designing, implementing and monitoring patient-specific therapeutic plans.

In order for the profession of pharmacy to move toward these expanded roles, barriers in the pharmacy environment (including pharmacist-related, patient-related, informational/philosophical as well as other) must be overcome. These barriers will be discussed in further detail in Chapter Two. Pharmacists often cite lack of patient demand for these services as a primary rationale for not providing them (Nelson, Zelnio and Beno, 1984; Raisch, 1993; Herrier and Boyce, 1994). Despite pharmacists' perceptions, patients report wanting additional information as well as additional services by pharmacists (Erstad et al., 1994; Enlund et al., 1991; Hirsch et al., 1990). It is precisely this incongruence which is at the heart of this study. Of further interest is a related issue regarding the provision of pharmaceutical care type services. Because pharmacists cite lack of patient demand as a barrier to providing pharmaceutical care services, it stands to reason that if pharmacists understand patient demand, they may indeed be more likely to provide those services. To better understand this issue, one must understand the relationships between pharmacists' and patients' perceptions.

### Significance

As the profession of pharmacy begins to shift toward more patient centered activities, communication with patients becomes more important. Although dispensing

the right drug in the right dose to the right patient remains paramount to the profession of pharmacy, it no longer is sufficient to define the role of the professional pharmacist. The implementation of pharmaceutical care is a step toward a more active, patient centered role for pharmacists. Such a practice model depends upon a pharmacist's ability to interact with patients, as well as other health care professionals.

In addition, pharmacists are faced with changes in health care financing. Pharmacists are increasingly being asked to justify their role in health care. As noted by Knowlton and Knapp (1994), pharmacist involvement in therapeutic decision making can save a payor money. For the pharmacy itself, however, providing patient services can be a way of satisfying patients' needs and desires while at the same time saving the health care system money.

By understanding patients' desires for services such as the provision of information about medications and monitoring of medication effects, pharmacists can more accurately direct the types of services they provide for their patients. This study will attempt to characterize the level of understanding between pharmacists and patients in terms of what types of services would be beneficial for patients.

Researchers have shown that often pharmacists do not fully understand what their patients would like from them (Herrier and Boyce, 1994; Hirsch, 1990; Carroll and Gagnon, 1984a). Similarly, because patients have not had experience with expanded pharmacy services such as pharmacist development, implementation and monitoring of therapeutic plans, patients may not fully understand what pharmacists are capable of providing or what services pharmacists would like to provide for them

(Chewning and Schommer, 1996; Gagnon, 1978). This difference in expectations and understandings can lead to a pharmacist being frustrated by a patient's lack of patience when picking up a prescription; or, a patient being frustrated by his or her pharmacist's lack of attention when dispensing a prescription. This study will attempt to illustrate the extent to which pharmacists and patients agree or disagree on the types of pharmacy services they perceive to be valuable. Further, it stands to reason that if a pharmacist understood patients' desires for expanded services, that he or she would indeed provide those services. This study will also attempt to test that hypothesis. If pharmacists understand patients' desires for pharmacy services, are they more likely to provide those services or do pharmacists merely understand patients' desires but not incorporate them into practice?

### Background

Pharmacists are in a unique position to provide patients with medication information. Not only are they the last health care professionals to come in contact with the patient prior to medication consumption, but they maintain a distinct knowledge base of drug information which can provide patients with essential information to prevent adverse drug effects and potential drug interactions. Policy makers have recognized this potential and mandated through OBRA '90 that pharmacists counsel all Medicaid patients receiving prescription medications beginning January 1, 1993. Mandatory counseling laws are now widespread. The most recent National Association of Boards of Pharmacy Survey of Pharmacy Law (1997) reported

that 45 states, including the District of Columbia, have required counseling for Medicaid patients. One state had legislation pending to institute mandatory counseling, and the remaining five states required an offer to counsel Medicaid patients. In addition, 36 states required counseling for all other patients. Michigan and the District of Columbia had legislation pending, while only seven states had no requirements for counseling all other patients.

Pharmacists themselves, along with patients, recognize the need for patient counseling. For example, Ortiz et al. (1984) asked pharmacists to complete a questionnaire assessing their level of agreement with statements about the role of community pharmacists. In response to the survey, 96 percent of pharmacists agreed that community pharmacists should counsel patients about prescription and nonprescription medications. They also agreed that pharmacists should keep up with current drug information, should regularly attend continuing education programs and have good working relationships with other health care professionals. Schommer and Wiederholt (1994) found that pharmacists believe it is important to provide both oral and written information to patients in order to avoid potential problems and misunderstandings. Further, pharmacists have been shown to customize patient counseling activities by identifying different elements of importance in patient counseling based on various situations (Schommer and Wiederholt, 1994). However, contrary to this view of pharmacist involvement, Hirsch et al. (1990) found that patients want more drug information but reported that pharmacists do not always provide such information. Alkhawajah and Eferakeya (1992) support this notion with their findings

that although pharmacists provided more information about medications than physicians, patients still did not receive crucial information. None of the patients involved in the study was told about potential adverse drug reactions and only 9 percent of study patients were warned of important precautions.

Although pharmacists are in a position to counsel patients, and both pharmacists and patients recognize the importance of patient counseling, many pharmacists still do not counsel patients. To explain this phenomenon, pharmacists cite excessive workload, lack of privacy, patient attitudes and store layout as barriers to providing patient specific counseling services (Raisch, 1993; Herrier and Boyce, 1994). Carroll and Gagnon (1984) noted that pharmacists' perceptions of patient demand is as important as the actual patient demand in determining the provision of "patient-oriented pharmacy services". The study explored pharmacists' perceptions of consumers' demand for patient oriented pharmacy services. Researchers collected information from both pharmacists and consumers and upon comparison of the two perspectives, concluded that "pharmacists underestimate [patients'] demand for patient medication records but not for voluntary provision of advisory services" (p.640). Herrier and Boyce (1994) offer further support that, "one barrier regularly listed was low patient expectations. Pharmacists felt that patients were not open to counseling because they did not expect it" (p.23).

The extent to which pharmacists' perceptions serve as a barrier to counseling is yet unknown. Examining pharmacists' perceptions of patients' expectations relative to patients' actual expectations may provide a better understanding of any potential

barriers to counseling. This study will attempt to characterize pharmacists' perceptions of patients' beliefs, patients' perceptions of pharmacists' beliefs as well as the extent to which the congruency of these perceptions affects the communication that occurs between them.

## CHAPTER 2 THEORETICAL FRAMEWORK AND SUPPORTING LITERATURE

### Background

The relationships between pharmacists' and patients' perceptions of the communication that occurs, or can occur, between them is the primary focus of this study. Communication between pharmacists and patients is an interpersonal process that will be examined from an interpersonal communication approach to better understand patient and pharmacist perceptions and the relationship between them. The finding that pharmacists often perceive patients to be uninterested in learning more about their medications despite patients' expressed desire for additional information, may indicate that pharmacists hold inaccurate perceptions of patients' expectations. Likewise, the fact that some patients may perceive their pharmacist as uninterested in helping them may also be inaccurate. The congruency of pharmacists' and patients' perceptions may determine if there is communication between the two and if so, the nature of that communication. Thus, both pharmacist and patient perceptions must be examined in order to understand and characterize the potential gap between them. Individuals' perceptions help form the basis for the communication in which they engage. For example, if patients perceive pharmacists to be too busy, then perhaps they will not ask questions they have about medications. This perception can facilitate

the pharmacists' inaccurate perceptions of uninterested patients. Thus, each party's perceptions not only shape the way they communicate (or not communicate) but in this case may also further define the role of the pharmacist as merely a dispenser of medications. This chapter will explore perception of self and others, the development of models to explain interpersonal perception and finally will review interpersonal perception literature.

### Interpersonal Perception

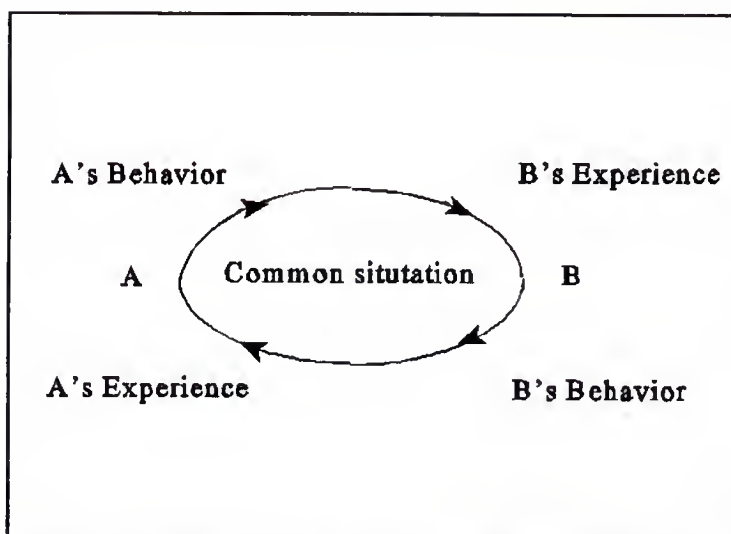
People have the ability to explore the concept of self and as such develop generalized views of themselves, or self-concepts. Self-concepts are derived not only through rumination, but more significantly from interactions with others. Laing, Phillipson and Lee (1966) call attention to the fact that many philosophical, psychological and sociological theories have developed primarily from an "I" orientation. Such theories lack an acknowledgment of the fact that "others" also play an important role in the definition of self. However, Cooley (1902), with the concept of the "looking glass self," began to explore the interplay between self and others and how this in turn affects the "self". Cooley (1902) proposed that one's understanding of self develops from one's perceptions of others' reactions to oneself. That is to say, one learns about self mainly through experiences with others. The idea of the looking glass self suggests that one's impressions of self are seen as a mirror of other's reactions. In Laing's (Laing et al., 1966) terms, a person's experience is made up of not only a direct view of the self and of a direct view of the other, but also includes an abstraction

of self. This includes others' views of the self as well as the self's view of their views, which coalesce to form abstractions, labeled metaperspectives. For example, consider that although I am unable to see myself as others see me, I am able to perceive them seeing me in particular ways. These perceptions, combined with my view of self, form my self-identity. In summary, the theoretical constructs of self-identity (my view of myself) and meta-identity (my view of your view of me) are formulated not only by looking at ourselves but also by looking at others looking at us and our perceptions of the views of others' toward us, called metaperspectives.

The term "phantasy" has been used to denote a "primary way of experiencing self and others which contributes to, and sustains, our relations with others throughout life" (Laing, 1961, p.9). Isaacs (1952) suggests that the notion of phantasy helps a person to identify and relate to others, and is a creation of a mode of experience which is private, or internal, and only accessible by the self. One element of phantasy is that knowledge of another person is based solely upon inference. Because a person's experience is private, and unknown to others, one must attempt to interpret perceptions of another person's behavior and oral communication in order to understand the other person's experience. Further, this inference presupposes that the other person's actions are in some way a function of the other's experiences. It is through perception that we are able to experience and comprehend our environment as well as interact with people in our environment (Heider, 1959). One can influence another's experience through modification of one's behavior or alteration of the other's perceptions.

A person's behavior can be seen as a function of the person's experience with another person's behavior in a common situation. More specifically, Person A's behavior influences Person B's experience of the situation. This, in turn, influences Person B's behavior which again influences Person A's experience (see Figure 1). In essence, it is a circle of experience and influence. That is to say, the "behavior of each towards the other is mediated by the experience by each of the other, just as the experience of each is

mediated by the behavior of each" (Laing et al., 1966; p.10). However, the behavior does not directly lead to experience. It must first be perceived and interpreted by the individual. As perception occurs,



**Figure 1.** Interpersonal Perception and Behavior  
Laing, Phillipson and Lee (1966), p.9

interpretations are made. Further, because the criteria by which behaviors are interpreted vary among individuals, one action may be perceived quite differently by two people. For example, "to feel loved is to perceive and interpret, that is, to experience the actions of the other as loving" (p.11). Further, although the behavior may be agreed upon, the meaning conveyed by the behavior may be disagreed upon. For example, to one person, actions demonstrating love may be perceived by another as controlling. Thus, experience entails the perception of an act as well as the

interpretation of it. Interpretations are based on past learning and can also vary according to context. When two people do not agree on the meaning of a particular behavior, questions arise as to their understanding of the difference of the interpretations. This situation arises when peoples' perceptions of one another are inaccurate. Further, one must question whether they realize that their understandings differ. At the same time, two individuals can misunderstand each other and can realize or fail to realize their misunderstanding.

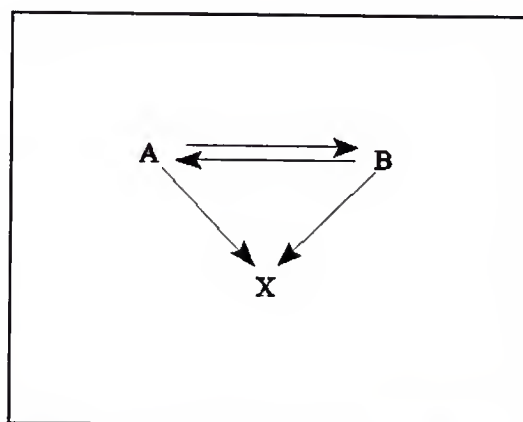
For example, misunderstanding and misinterpretations of communication can lead to spirals between two people which have dramatic implications for their relationship. What one person thinks of the other, affects the second person's view of self. This, in turn, affects the second's actions in response to the first. This example illustrates the potential effect perceptions have on behavior. In order to discern the nature of these spirals, one can view them as having multiple levels of analysis based on multiple levels of perception. "Through my behavior I can act upon three areas of the other: on his experience of me; on his experience of himself; and upon his behaviors. In addition, I cannot act on the other himself directly, but I can act on my own experience of him" (p.22). Three levels of perception that help us perceive relationships with others, called metaperspectives, will be discussed. These include the direct perspective, the metaperspective and the meta-metaperspective (Laing et al., 1966).

As Laing et al. describe (1966), the direct perspective is a direct experience, or perception. It is one person's view of another, or a person's view of self. For

example, one can perceive oneself as trustworthy while at the same time perceive another to be untrustworthy. Second, the metaperspective is one person's view of another's view of their relationship. Continuing with the example of trustworthiness, a statement from the metaperspective may be "I imagine you would say I am trustworthy." In other words, the metaperspective is each person's view of the other person's direct perspective. Third, the meta-metaperspective is what I think you think about what I think about you. For example, a statement from the meta-metaperspective may be "I think that you imagine that I would say 'you are trustworthy'." In other words, it is each person's view of the other person's metaperspective.

### Models of Interpersonal Perception

Newcomb's Coorientation Model (1953) serves as the foundation for approaches to interpersonal perception and thus offers the groundwork for viewing how interpersonal perceptions shape communication. As depicted in Figure 2, the model assumes that two persons, A and B, are attracted to each other either positively or negatively. Further, they simultaneously maintain an orientation or attitude toward an object of communication, X. Newcomb (1953) suggests that symmetry must be maintained in the triangular relationship. Under conditions of



**Figure 2.** Newcomb's Coorientation Model; Wilmot (1975), p.84

discrepancy, such as if A dislikes X while B likes X, a state of psychological tension is produced. This psychological tension must be reduced in some way. Symmetry can be restored if A's attitude

toward B, or toward X,

changes. Other ways to

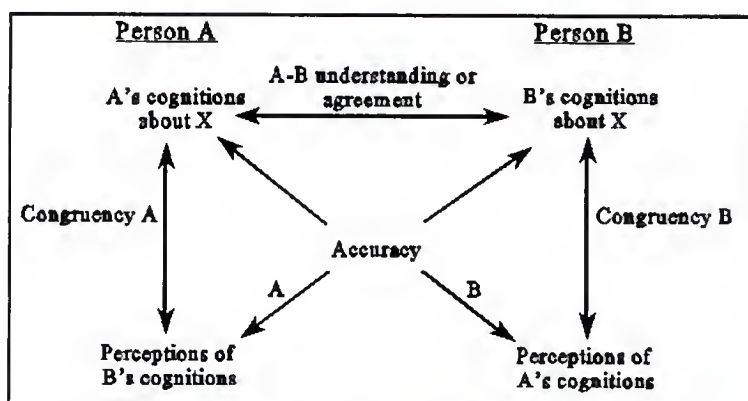
restore symmetry include A

trying to change B's

evaluation of X, A

discontinuing communication

with B, A seeking support



**Figure 3** Expanded Coorientation Model

McLeod and Chaffee (1973), p.484

from other persons, or A cognitively distorting perception of the realities of the situation.

An expanded Coorientation Model was proposed by Taguiri et al. (1958) and further elaborated by Chaffee and McLeod (1968). The expanded model facilitates the measurement of the conceptual model detailed by Newcomb and employs the use of the terms agreement, congruency and accuracy to describe perceptual differences between two people. Congruency refers to the degree of similarity between A's own cognitions and A's perception of B's cognitions. Communication can affect congruency by either increasing or decreasing it depending on its initial level and accuracy. Agreement refers to the degree of similarity between A and B's perceptions. This can also be referred to as understanding in the context of a person-to-person orientation. Finally, accuracy refers to the extent to which A's estimate of B's perceptions reflect the true

nature of his perceptions. Figure 3 provides a representation of the expanded Coorientation Model.

Although Taguiri et al. (1958) are concerned with person-to-person relations, rather than person to object orientations, this model can be applied to both. McLeod and Chaffee (1973) propose that the Coorientation Model can be used in understanding dyadic communication because it provides the groundwork for a relational analysis. In order to understand a relationship between two people, one must examine the nature of the relationship itself rather than merely observing the two as individuals. In other words, the dyad is the unit of analysis rather than the individual. Therefore, McLeod and Chaffee (1973) propose that any index of a dyadic relationship should include a measure of what each person's attitudes or orientation toward the other person or object are, as well as what each person perceives the other's attitude or orientation to be. This type of approach yields the relational data regarding congruence and accuracy.

Newcomb's and Taguiri's models of communication are the beginnings of relational models. Relational perspectives on communication began to develop in the 1950s and 1960s when researchers in Palo Alto, led by Bateson, brought into focus relationships as systems (Reardon, 1987). They proposed that within relationships, "patterns of interaction emerge and dysfunctional patterns, or problems, can often be identified and altered" (Reardon, 1987; p. 43). Relational communication suggests that not only does communication between two people serve to transmit content, it also serves to define and maintain their relationship. Through metaperspectives individuals gauge the relational communication that occurs between them. As Wilmot (1975)

explains, in transactions, each person 1) assumes a role for herself, 2) imputes a role to the other and 3) estimates what role the other thinks she is assuming. These ideas are analogous to Laing's terms, of direct, meta- and meta-metaperspectives in that each person has a view of his and the other's role. In any given transaction, both participants attempt to define themselves, the other and the relationship by interpreting the relational cues from their communication. In a relationship, each participant has his or her own definition of the situation and also an awareness of and ability to adjust to how he or she thinks the other person defines the relationship. This leads to a mutual definition of a relationship.

Based on the ideas of the looking glass self and relational communication, people define themselves based on the others' reaction to their projected identity. Further, they tend to seek support for the identities they project (McCall, 1970). Through the meta-metaperspective, a measure of the degree of support for the projected identity is possible.

### Interpersonal Perception Literature

The IPM evolved from a psychological orientation and has been used predominantly in the study of interactions between married couples (Drewery and Rae, 1969; Kottas, 1969; Sillars and Scott, 1983) or between friends (Sullins, 1992). Further, studies have focused on accuracy of interpersonal perception, perceived understanding (Sillars et al., 1994), resolution of marital conflict (Knudson et al., 1980), and relationship control (Wichstrom and Holte, 1993).

In order to measure and analyze these perspectives and the relationships among them, an Interpersonal Perception Method (IPM) was developed by Laing et al. (1966). For this method, two people, A and B, can be asked to respond to a series of statements from each perspective. Comparisons are then made between the two direct perspectives to assess the pair's agreement or disagreement on that statement. A comparison of A's metaperspective with the B's direct perspective yields a measure of A's understanding or misunderstanding of B. A comparison of A's meta-metaperspective with the B's metaperspective yields a measure of A's realization or failure to realize whether B has understood or misunderstood A. Finally, a comparison between one's own direct and meta-metaperspectives yields a measure of feeling understood or feeling misunderstood. This will be discussed in further detail in Chapter Four.

Drewery (1969) further expanded Laing et al.'s (1966) Interpersonal Perception Method (IPM), and distinguished his Interpersonal Perception Technique in three ways. First, the technique uses the Edwards Personal Preference Schedule (EPPS), a personality questionnaire designed to measure 15 personality traits. Second, the technique limits the perceptual analysis, using a married couple as an example, to the level of "husband's view of wife's view of a topic" which is labeled as Laing's metaperspective. Laing extends his analysis to the meta-metaperspective which would be the husband's view of the wife's view of the husband's view. Drewery believed that the meta-metaperspective introduced a degree of conceptual difficulty into the task which would seriously limit its usefulness. Third, a difference lies in the method of comparison between dyads. Laing compares dyads by comparing the amount and

nature of the agreements or disagreements. Drewery's techniques, on the other hand, compare dyads in terms of agreements and disagreements on established personality traits (the EPPS).

As Sillars and Scott (1983) detail, numerous studies have shown a positive relationship between understanding and adjustment in a relationship (Dymond, 1954; Christensen and Wallace, 1976; Newmark et al., 1977; Laing et al., 1966; Murstein and Beck, 1972; Sillars et al., 1994; Knudson et al., 1980). In a few of these studies, the association has been found only when the wife responds in predicting the husband's perceptions (Murstein and Beck, 1972; Stuckert, 1963). Subsequent studies (Sullins 1992; Alperson and Friedman 1983; Schullo and Alperson 1984) have corroborated the finding that females tend to be more accurate in their perceptions of their partner or friend than males. Researchers have also found perceived similarity, expectations of agreement and feeling understood to be associated with higher levels of marital satisfaction (Corsini 1956; Laing et al. 1966; Dymond 1954). However, Sillars et al. (1983) suggest that the relationship between perception and marital satisfaction depends on the couple's assumptions about marriage. For example, as Fitzpatrick (1982) identifies, couples may engage in different type of relationships: traditional, in which husbands and wives function in traditional male and female roles; independent, in which husbands and wives complement each other and work together but not in traditional roles; and separate, in which husbands and wives function almost independently of one another. If a "traditional" couple values sharing, their understanding may be very important to marital satisfaction. On the other hand, if a "separate" couple values

emotional distance or autonomy, perceived understanding may not be related to marital satisfaction. Research among disturbed couples (those who were seeking therapy or a divorce) in comparison to nondisturbed couples has shown that using the IPM, there are fewer disjunctions in the interactions of nondisturbed couples and that the nondisturbed couples report a higher degree of harmony (Laing et al., 1966). Another study using the Interpersonal Perception Technique (Drewery and Rae, 1969) showed differences between alcoholic and non-alcoholic marriages. In non-alcoholic marriages, wives' understanding of their husbands increased with duration of marriage. Conversely, in alcoholic marriages, wives' understanding of their husbands decreased with length of marriage.

Finally, Wichstrom and Holte (1993) used a shortened, modified version of the IPM, the DYADE, to study the relationship between perception and relationship control. This study improved upon earlier studies, which relied solely on the self-report of behaviors, by observing couples on three occasions. Results indicated that couples who communicated in dysfunctional ways reported less satisfaction in the marriage. They also were less accurate in their perceptions of the other's feelings.

In summary, studies have shown agreement and understanding between partners to be positively associated with adjustment and relationship control among married couples. It would also seem that females are better able to perceive their partner (Sullins, 1992; Alperson and Friedman, 1983; Schullo and Alperson, 1984). Laing, Phillipson and Lee's (1966) Interpersonal Perception Method "is designed to measure and provide understanding . . . [of] the conjunctions and disjunctions, of two

individuals in respect of a range of key issues with which they may be concerned in the context of their dyadic relationship" (p.38). Although traditionally used in the analysis of personal relationships, this model of dyadic relationship seems to reach the essence of the potential misperceptions between pharmacist and patient. A key issue in the pharmacist-patient relationship is how pharmacists' and patients' perceptions influence their communication. As will be detailed in the following chapter, pharmacists report that they attempt to provide patients with the type of services they perceive patients want, while at the same time patients perceive pharmacists' to be too busy to answer questions and as such leave the pharmacy with unanswered questions. An adapted version of the Interpersonal Perception Method may be helpful in providing a better understanding of this discrepancy.

### Research Questions

In parallel to intimate relationships, the extent to which pharmacists and patients agree upon the potential benefits of pharmaceutical care, understand each other's perceptions, realize their understanding and feel understood, may have a dramatic effect upon their relationship. The incongruence that appears to exist between pharmacists and patients is explored through the application of the interpersonal perception model. Based upon the type information that can be gleaned from collecting data from the three levels of perception; the direct, metaperspective and meta-metaperspective, comparisons are made between pharmacists' and patients' perceptions to answer the following questions:

1. Do pharmacists and patients agree on the type of pharmacy services which they perceive would be beneficial to patients if provided by pharmacists?
- 2a. Do pharmacists understand patients' perceptions of pharmaceutical care type services?
- 2b. Do patients understand pharmacists' perceptions of pharmaceutical care type services?
- 3a. Do pharmacists realize or fail to realize that patients understand (or misunderstand) pharmacists' perceptions of pharmaceutical care type services?
- 3b. Do patients realize or fail to realize that pharmacists understand (or misunderstand) patients' view of pharmaceutical care type services?
- 4a. Do pharmacists feel understood by patients with regard to pharmaceutical care type services?
- 4b. Do patients feel understood by pharmacists with regard to pharmaceutical care type services?
5. What is the relationship between pharmacists' agreement with patients, pharmacists' understanding of patients, pharmacists' realization of understanding and pharmacists' feeling understood and the extent to which pharmacists provide pharmaceutical care type services?

Research questions 3a and 3b were shaped by the results of research questions

2a and 2b. According to the theory, once understanding or misunderstanding has

occurred, the questions of realization can be addressed. If, in fact, patients were found to understand pharmacists, results from research question number 3a would indicate whether pharmacists realize or fail to realize that understanding had occurred.

Alternatively, if patients were found to misunderstand pharmacists, the question would address whether pharmacists realize or fail to realize that misunderstanding had occurred. Likewise, results from question 2b shaped question 3b for patients. The following chapter will address what is known from the literature about communication between pharmacists and patients which may help answer these research questions.

## CHAPTER 3 REVIEW OF LITERATURE

### Introduction and Background

In 1967, American Pharmaceutical Association President Bill Apple (Apple, 1967) called for pharmacists to communicate with other health professionals and patients about the proper use of medications and to avoid becoming preoccupied with the potential liabilities. After nearly thirty years and several legislative efforts, pharmacists have yet to fully embrace their potential role as drug advisors. Pharmacists have not yet assumed the role of drug educator, and patients continue to leave physician's offices and pharmacies uninformed or misinformed about their medications. Not only can pharmacists provide patients with information, they can assess patients' response to treatment, provide ongoing monitoring of patients' response to treatment and make recommendations to optimize patients' therapy. This expanded role for pharmacists has recently become a focus within the profession of pharmacy. Hepler and Strand (1990) outline this role for pharmacists as the provision of pharmaceutical care that involves pharmacists working with patients and physicians to design, implement and monitor patients' drug therapy. More than legislative requirements for the provision of information, this type of involvement in patients' therapy relies on the pharmacist's ability to communicate effectively with both patients and physicians.

Pharmacists must first initiate the communication with patients and then must collect patient-specific information and utilize it to develop patient specific therapeutic plans.

In 1993, in order to assist pharmacists with the transition toward greater patient involvement, the American Journal of Hospital Pharmacy printed guidelines on pharmacist-conducted patient counseling. Fourteen points applicable to both prescription and nonprescription drugs were listed as pertinent information. These criteria are consistent with legislation (OBRA '90) mandating such patient counseling. Through both legal and professional authorities, pharmacists are being urged to provide patients with information. Historically, however, pharmacists have not provided much information to patients. Despite the noted absence of counseling, patients recognize its importance (Gagnon, 1994; Carroll and Gagnon, 1984b; Hirsch et al., 1990; Gotsch and Liguori, 1992; Norwood et al., 1976).

The issue of patient counseling is of obvious significance to patients as well as pharmacists and the profession of pharmacy. In order to better understand patient counseling, researchers have observed the interactions between pharmacists and patients. However, as discussed by Chaffee and McLeod (1973), it is not sufficient to merely observe two individuals to understand their interaction, rather one must also include a measure of each person's attitudes toward the other or object. The Interpersonal Perception Method (IPM) is designed for this purpose--to measure and provide an understanding of the "conjunctions and disjunctions of two individuals in respect of a range of key issues with which they may be concerned in the context of their dyadic relationship," (Laing et al., 1966; p. 38). In this case, it is not sufficient to

observe pharmacists' interaction with patients to judge the benefit of the services they provide. Rather, one must ask both pharmacists and patients about their perceptions of patient counseling from a pharmaceutical care perspective. Extensive research has addressed patient counseling; some has included pharmacists' and patients' perceptions. This chapter reviews the literature detailing the benefits of patient counseling in order to demonstrate salience of this issue. Second, literature describing the extent to which pharmacists engage in counseling behavior is reviewed to demonstrate what has been learned through study of the issues. Finally, literature addressing pharmacists' and patients' perceptions of counseling is reviewed to illuminate any gaps in our understanding of pharmacists' and patients' perceptions as well as the congruency or incongruence between their perceptions.

### Effect of Pharmacist-Patient Communication

Researchers have used numerous terms in their description of pharmacist-patient interactions. "Patient education", "patient counseling" and "pharmacist-patient communication" have often been used interchangeably (DeYoung, 1996). As DeYoung (1996) explains, researchers have been vague in defining "counseling." Some have focused on pharmacists' provision of information specific to the medication (Gotsch and Liguori, 1982; McBean and Blackburn, 1982; Slama and Gurwich, 1978; Madden, 1973), while more recently, others have studied more extensive pharmacist-patient interactions in which pharmacists addressed patient concerns and questions in addition to providing information (Borgsdorf et al., 1994; Opdycke et al., 1992; Kimberlin and

Berardo, 1987). Overall, benefits have been linked to pharmacists' involvement with patients through the provision of written and oral information. These benefits include i) an improvement in patients' knowledge about their therapy (Rantucci and Segal, 1986; Jonston et al., 1986; Ascione and Shimp, 1984; McBean and Blackburn, 1982; Madden, 1973; McKenney et al., 1973), ii) improved compliance (Lipton and Bird, 1994; Kimberlin and Berardo, 1987; Edwards and Pathy, 1984; Gotsch and Liguori, 1984; Slama and Gurwich, 1978; Clinite and Kabat, 1974; Sharpe and Mikeal, 1974), iii) reduction in medication related problems (Hammarlund et al., 1985) and iv) cost savings (Forstrom et al., 1990; Knowlton and Knapp, 1994). In keeping with the interpersonal focus of this study, this section focuses on improved patient knowledge and compliance because of the direct impact the pharmacist-patient relationship can have on these variables.

### Patient Knowledge

Numerous studies have demonstrated that provision of information can improve patients' knowledge about their own therapy. Madden (1973) found a significant difference in patients' knowledge about drug treatment in a group of 120 patients studied in an experimental education group, as compared to an equal size control group which received traditional pharmacy services. In another 1973 study, McKenney et al. found that patients in the experimental group showed a significant improvement in their knowledge of hypertension and its treatment compared to control group patients. Both of these studies utilized patient recall as the measure of improved knowledge and found that experimental group patients were able to provide significantly more correct

answers than controls. Later studies confirmed that patients' knowledge can be improved through pharmacist intervention (Johnston et al., 1986; Rantucci and Segal, 1986; Ascione and Shimp, 1984; McBean and Blackburn, 1982). McBean and Blackburn (1982) found that patients who had received both written and oral information had significantly higher knowledge scores than patients who received no information from the pharmacist. Further, in their study of over-the-counter medications, Rantucci and Segal (1986) found that oral counseling did increase the patients' knowledge of potential side effects, precautions and contraindications of the medication. DeTullio and Corson (1987) showed that "instruction with demonstration and practice resulted in better patient understanding and performance of the correct steps for inhaler use, with improved bronchodilation as measured by ...[pulmonary function tests]" (p.1802). Contrary to these findings, when Slama and Gurwich (1978) studied the effect of pharmacist consultation, they found that patients who were counseled were more knowledgeable about their disease state and appropriate medication use. Yet, patients who were not counseled were more knowledgeable about medication names and renewal information.

Overall, pharmacist intervention generally has been shown to have a positive effect on patient knowledge. Patients can benefit from pharmacists' knowledge and accessibility, which allows pharmacists to answer questions and provide information about medications and disease states. However, as DeYoung (1996) explains, the relationship between improved patient knowledge and other patient outcomes is unknown. For example, Kimberlin and Berardo (1987) found no significant

relationship between total knowledge and compliance, raising questions about the usefulness of patient knowledge as an outcome of pharmacist counseling. Rantucci and Segal (1986) also suggest that pharmacists' provision of information may not be sufficient to affect change in patients' behavior. They suggest that it is a relationship between pharmacists and patients that can prove most beneficial in improving patient outcomes. Ascione and Shimp (1984) suggest that the pharmacist-patient relationship can be developed by pharmacists tailoring their communication to the patient's specific needs.

### Compliance

Research in the area of compliance has shown conflicting results. Some researchers have found no effect resulting from patient counseling on compliance. Yet, others have found counseling promotes significant improvements in compliance. Early research showed a short term improvement in compliance but little effect on long-term compliance. McKenney et al. (1973) found that when taken on a long-term basis, patients may become noncompliant even after initial compliance with the medication regimen. During the five month period of counseling, patients randomly assigned to the treatment group were significantly more compliant than non-counseled patients. However, after the study period, the patients in the experimental group returned to their baseline level of compliance. One study, Slama and Gurwich (1978), found that consultation with a pharmacist had no effect on compliance. Kimberlin and Berardo (1987) found a significant difference in patients' compliance between the pre-

intervention period and the intervention period where patients received medication information from the pharmacist.

Pharmacist counseling can be particularly important in helping elderly patients manage their complex medication regimens. Although studies by Wandless and Whitmore (1981) and Roden et al. (1985) each found no significant improvement in elderly patients' compliance despite pharmacist counseling, many studies of patient compliance in the elderly have found that pharmacist involvement does improve compliance (Lipton and Bird, 1994; Edwards and Pathy, 1984; Gotsch and Liguori, 1982; Sharpe and Mikeal, 1974). Specifically, Lipton and Bird (1994) studied the effect of pharmacist intervention with elderly patients discharged from the hospital. They found that at initial follow-up the experimental group patients were not more compliant; however, at subsequent follow up they did have better overall compliance. This supports the view that ongoing pharmacist contact may provided beneficial results in compliance. Edwards and Pathy (1984) found that a counseled group of patients had better compliance after six days. Further, Kimberlin and Berardo (1987) found a significant relationship between knowledge about medications and compliance among patients over the age of 60.

Results are mixed on whether written information alone is sufficient to improve compliance. Sharpe and Mikeal (1974) studied the effect of providing written information to patients receiving prescriptions for antibiotics. In a comparison of two groups of patients (those who had received no additional information beyond the prescription label and those who had received an information sheet), those who

received additional information were more compliant with their medication regimen. Gotsch and Liguori (1982) also found higher rates of compliance among patients who received patient package inserts for their antibiotic therapy compared to patients who received no information. Clinite and Kabat (1974) suggest that "written drug information without oral reinforcement was 'counterproductive' to compliance" (p. 85). This statement was based on the fact that patients who received only written information made the most 'errors' (30%) in dosing, while those who received verbal review of the written information made the fewest 'errors' (14%). This suggests that pharmacist involvement in providing written and oral information on an ongoing basis is beneficial for patients. Kimberlin and Berardo (1987) found that patients responded favorably to both written and oral information, as well as the combination of the two. Pharmacists in the study preferred the combination of written and oral information and believed that it was most effective in educating patients.

In summary, while some researchers found no significant improvement in patients' compliance despite pharmacist counseling, the majority of research supports pharmacists' ability to enhance compliance, via education and monitoring, particularly in the short run. This suggests that ongoing pharmacist involvement may be the key to improving patients' compliance with medication regimens.

### Extent of Patient Counseling

Until the late 1960s few studies of pharmacists' communication with patients were conducted. Knapp et al. (1969) suggest that while many articles may be found on

the philosophy of the pharmacist's role as a drug advisor, relatively few studies have attempted to measure the quantity or quality of the pharmacist's performance. Knapp et al. conducted one such a study, wherein a researcher posing as a diabetic patient purchased a medication that is contraindicated in patients with diabetes. Of 36 pharmacists, only six refused to sell the medication to the patient. In another scenario, a patient presented a prescription for a monoamine oxidase inhibitor used to treat severe depression, and one week later returned with a prescription for Tofranil, another medication for depression. Only one pharmacist out of 12 refused to dispense the second prescription. This study helped identify the problem of the lack of pharmacists' counseling in situations where a potential drug related problem exists.

A body of literature has emerged as researchers have attempted to quantify the percent of patients who receive information from pharmacists. Early researchers consistently found that approximately 70 per cent of patients do not receive oral counseling from the pharmacist when they receive a prescription. Using pharmacy students as mock patients, Rowles et al. (1974) found that 73 percent received no oral counseling from the pharmacist when they picked up their prescriptions. Similarly, Morris (1980) found that 72 percent of women received no oral counseling when picking up a prescription for estrogen, while Ross et al. (1981) found that 69 percent of patients received no oral counseling. Mason and Svarstad (1984) and Carroll and Gagnon (1984) each found pharmacists to be providing counseling to more patients than earlier studies. In these studies, 62 percent, 30 percent and 50 percent of patients did

not receive counseling, respectively. Mason and Svarstad (1984) used a mock patient, whereas Carroll and Gagnon (1984b) conducted a mail survey of households.

Berardo, Kimberlin and Barnett (1989) conducted direct observation of community pharmacists' interactions with patients. Prior to an educational intervention with pharmacists, they found that in 381 encounters between pharmacists and patients, between zero and 48 percent of patients received counseling from the eight different pharmacists observed. Raisch (1993) also conducted an observational study in conjunction with a self-report of pharmacists' patient counseling activities to compare counseling based on different payment methods and practice settings. The percentage of patients that were counseled ranged from only 7.9 to 12.9, with those in capitation programs receiving significantly less.

Other national estimates are much higher. Meade (1994) reports that pharmacists initiate conversations with patients 48 percent of the time, up from 39 percent in 1988. An earlier survey, reported by Meade (1992), found that 72 percent of pharmacists offer advice to patients before they ask for it and that six out of ten patients are counseled.

Some research has focused on the patient as a source of information regarding pharmacists' counseling activities rather than relying on mock patients or pharmacist self-report. Boyd et al. (1974) conducted interviews with patients, and found that 87 percent reported receiving no oral counseling from the pharmacist. Morris (1982) conducted a telephone survey of 1,223 individuals to assess the level of counseling provided to them by their pharmacist. Only 11 percent said that they had been

informed about potential side effects from their medication. Most (72 percent), reported that nothing had been said to them at the pharmacy. Rather, they had received written information in the form of auxiliary labels or leaflets. Some 19 percent reported receiving no information at all from the pharmacist. Enlund et al. (1991) surveyed 623 hypertensive patients, only 31 percent of whom were satisfied with the amount of information they received on potential adverse effects. Finally, Wiederholt, Clarridge and Svarstad (1992) report on an unpublished study in which Svarstad et al. conducted direct observations of patients receiving prescriptions. Of the 558 patients observed, 50 percent did not receive counseling. These studies suggest that only a small fraction of patients are actually receiving counseling from pharmacists. Further, the patients were not satisfied with the amount of drug information they received.

The National Pharmacy Consumer Survey, conducted in 1996, asked patients about the information they received from their pharmacists. As Stover (1996) reports, 89 percent of patients report that they receive written drug information either "always" or "often" for new prescriptions, and 70 percent of patients reported receiving written drug information for refill prescriptions. Further, approximately half of patients reported that they "always" or "often" speak with the pharmacist directly about their medications. Despite these results, the patients also reported wanting more information. This is consistent with an earlier study by Hirsch et al. (1990). Their findings also suggested that patients were pleased with pharmacy services, but thought pharmacists should supply more drug information.

One early study revealed differences in counseling based on practice setting. In 1978, Puckett et al., surveyed counseling practices in 95 pharmacies. They found that practitioners in pharmacies where only prescription and nonprescription medications as well as health care accessories were sold had the highest incidence of volunteering information to patients when compared to practitioners in traditional pharmacies and chain or discount pharmacies. Additionally, they found that when information was given, it was most frequently related to warnings about the drug's action, the frequency of administration and the need to avoid certain foods or activities. Although this information was given, pharmacists generally failed to be specific with regard to the timing of doses and many were not complete in the information provided. The frequency of counseling varied by practice setting; in the traditional practice site, 36 percent of pharmacies provided voluntary counseling; in professional settings, 54 percent volunteered information; and in the chain or discount setting, 29 percent provided voluntary counseling.

In summary, researchers have attempted to quantify the amount of patient counseling that occurs in community pharmacies. Over time, there seems to have been improvement. Recent results (Stover, 1996; Meade, 1994) have indicated that more patients are receiving written and oral counseling from pharmacists than in the past (Ross et al., 1981; Boyd et al., 1974). As described in numerous studies, many factors may account for the observed variation, including practice setting, practice environment and pharmacist characteristics. However, despite the benefits associated

with counseling and the wide range of estimates, it appears that pharmacists are not providing consistent counseling to their patients.

### Pharmacist Views of Patient Counseling

When exploring the apparent lack of patient counseling, one must consider the views of pharmacists themselves, or pharmacists' direct perspectives of involvement with patients. Many studies have attempted to understand the lack of pharmacist counseling from the pharmacists' perspective. Zelnio, Nelson and Beno (1984) began to explore potential barriers to pharmacists' involvement with patients. Community pharmacists were sent mail questionnaires asking them to rate their willingness and perceived level of competency for five potential levels of counseling ranging from minimal to maximal interaction. Results indicated that both competency and willingness may serve as barriers to pharmacists' provision of counseling services in the community setting.

In further analysis of the responses to the mail questionnaire, Nelson, Zelnio and Beno (1984) identified the following as barriers pharmacists perceived to their provision of counseling services: lack of revenue from services, pharmacists' attitudes, lack of time, physicians' attitudes, legal barriers, patients' attitudes, lack of patient contact, pharmacist incompetence, lack of demand, services being too costly, lack of facilities, inadequate pricing methods and pharmacists' characteristics such as type of entry level degree. These barriers are echoed in more recent studies of barriers to

counseling (Raisch, 1993). In addition, lack of privacy and store layout were identified by the 73 pharmacists who completed the survey.

The most comprehensive evidence is offered by Herrier and Boyce (1994) with the results from workshops with nearly 30,000 pharmacists. Participating pharmacists were asked to identify barriers to patient counseling at their practice sites. Once again, common themes emerged in the discussions. Pharmacy environment, as well as barriers that were pharmacist-related, patient-related, informational/philosophical and miscellaneous were addressed. Barriers in the pharmacy environment included excessive workload and lack of time or staff. The physical layout of the pharmacy and lack of privacy were also mentioned as potential barriers. Pharmacist-related barriers included lack of formal education or lack of knowledge about the prescribed drug, or poor counseling skills.

Patient related barriers were most frequently identified as the patient being in a hurry or uninterested in receiving information about the medication. The perceptions of patients being uninterested in the information would be considered as coming from pharmacists' metaperspective. Philosophical or information barriers were related to pharmacists' questioning of their abilities to affect patient outcomes through counseling activities. Finally, miscellaneous barriers include concerns over liability and lack of reimbursement as barriers to providing counseling services. Consistent with previous findings, Schommer (1994) also identified "lack of time" as the primary barrier to counseling. Rumore, Feifer and Rumore (1995) in a study designed to explore pharmacist' implementation of OBRA '90 regulations found that pharmacists listed time

constraints, lack of reimbursement and patient indifference as problems in implementing OBRA '90 requirements. Finally, in one on one interviews pharmacists identified the external barriers of time, practice setting, patient expectations and personality as most salient (Assa, 1995).

Kirking (1982) offered a different, more positive view of pharmacists' perception by looking at pharmacists' direct perspective of benefits of patient counseling. In the study of pharmacists' perceptions of their patient counseling activities as well the extent to which they engage in counseling activities, the pharmacists reported that counseling would likely be beneficial for both patients and pharmacists. The pharmacists agreed that auxiliary labels and patient package inserts cannot replace oral counseling. Further, they believed they were qualified to counsel without additional training. Interestingly, they did not believe that the pharmacy layout had an inhibitory effect on their counseling. Pharmacists' metaperspective of pharmacy services was also included in the study. Pharmacists seemed to believe that although patients may want counseling, they are unwilling to pay for those services.

Oliver and Barnes (1983) conducted an anonymous survey of 50 pharmacists who identified communicating information about medications, gathering information and responding to patients' anxieties as most important in patient counseling. They also believed that pharmacists should initiate patient counseling rather than wait for the patient to initiate it. Nelson, Zelnio and Beno (1984) found that pharmacists saw a great need for their provision of clinical services, yet only a small demand for them. Miller and Ortmeir (1995) also found that pharmacists believed they could provide

beneficial services that would meet the needs of patients. The pharmacists surveyed ranked the services of providing a computerized patient profile, drug allergy screening and drug interaction screening along with oral patient counseling and over the counter medication counseling as the most important services they could provide for patients.

Consistent with the theoretical premise of interpersonal perception, pharmacists rely on their perceptions of patients to define their role as pharmacists. Schommer and Wiederholt (1994b) identified patient motivation, patient abilities and time available as the most frequently cited determinants of the amount and type of counseling. The situational elements were also identified as playing a role in pharmacists' decision to counsel. Specifically, patients' familiarity with the medication and the pharmacists' perceptions of seriousness of potential consequences with a particular medication were important determinants of pharmacists' counseling. Schommer (1994b) found similar results in a study of Ohio pharmacists. He, too, reports that pharmacists use "patient desire for counseling and the type of medication to determine the amount and content of counseling they give their patients" (p.765).

In summary, pharmacists recognize the importance of counseling yet find it difficult to provide patients with the information they need due to many perceived barriers. Pharmacists question their own knowledge and competency, yet also cite external barriers such as lack of revenue, lack of time or lack of patient interest as key issues. These barriers must be overcome if pharmacists are to proceed with what they recognize as beneficial services. Pharmacists report that they perceive they are

behaving in accordance with what they think patients want from them. However, the accuracy of pharmacists' perceptions is unknown.

### Pharmacist Variables Associated with Counseling

The barriers identified by pharmacists suggest situational as well as personal reasons patients may not be receiving as much counseling as they might desire or find helpful. Differences between pharmacists may also be important when looking at the provision of counseling services. Factors such as practicing independent pharmacy settings, holding advanced pharmacy degrees, having completed more hours of continuing education, working more hours per week and being more willing to participate in continuing education programs have been found to be associated with a higher level of provision of counseling services (Zelnio, Nelson and Beno, 1984). Watkins and Norwood (1976) studied the relationship of practice environment and pharmacist age to the quality of counseling pharmacists provide. They hypothesized that there would be a difference in attitude, knowledge and behavior of pharmacists based on the length of time since graduation and that there would be differences in attitude, knowledge and behavior among pharmacists in different practice sites. They found that there were no differences in the pharmacists attitudes or knowledge across environment, yet there was a significant difference in behavior. Those pharmacists in discount pharmacies had the lowest levels of counseling behavior, whereas those in independent pharmacies had the highest. There was also a significant difference between groups based on year of graduation on knowledge and attitude with those out

longer having less positive attitudes. No significant differences were found in behavior.

Researchers generally agree that practice setting does affect the behavior of pharmacists, with those in independent type pharmacies exhibiting the most counseling behavior. This difference may be due to the amount of time available to pharmacists for counseling or a difference in emphasis placed on these services by managers. Some research evidence suggests that barriers such as pharmacy environment and lack of time in certain practice settings noted by pharmacists are indeed barriers to counseling (Zelnio et al., 1984; Watkins and Norwood, 1976).

#### Patients' Views of Pharmacist Counseling

In contrast to the studies of pharmacists, many researchers have studied pharmacist-patient interaction from the patient's perspective. For example, Hirsch, Gagnon and Camp (1990) attempted to understand patients' direct perceptions of pharmacy through consumer focus groups. Overall, the patients in the study were pleased with their pharmacists, but believed that the pharmacists should supply more drug information. In fact, some patients believed that pharmacists were deliberately withholding information from them. Further, while some patients complained about having to wait for their prescriptions, others merely wondered why a waiting room was not available. Chewing and Schommer (1996) assessed patients' perceptions and knowledge of pharmacists' roles. They found that patients perceived pharmacists to be too busy to interact with them. Some patients also felt that pharmacists were rude.

As Gagnon (1994) details, patients rated talking with the pharmacist about issues such as dosage directions, side effects, interactions and allergies as either important or very important. This underscores earlier work by Carroll and Gagnon (1984), who gathered consumer self-reports of importance of pharmacy services in an effort to characterize the accuracy of pharmacists' perceptions of consumer demands.

Consumers rated the voluntary provision of advisory services as the most important service that could be provided. Also noted as important by consumers were, successively, the friendliness of pharmacists, availability of advisory services on request, nominal increase in prescription price (for additional time spent with the pharmacists) and maintenance of patient medication records were rated as important by consumers. Finally, Perri et al. (1995) conducted a survey to assess the impact of OBRA '90 on pharmacists and patients. They found that patients felt pharmacists provided useful information. They also reported that patients were willing to give the pharmacist personal information to help the pharmacist improve their care.

Patients can receive information about their medications from a variety of sources: while they still look primarily to their physician, they do value the pharmacist as an advisor. Stratton and Stewart (1990) found that the public ranked "physicians more highly than the pharmacist as a source of drug information . . . only 19 of 95 respondents (20 percent) ranked the pharmacist as the first person from whom they would seek information about a prescription drug" (p.21). Nonetheless, pharmacists were ranked second among consumers as a source for drug information and as sources of assistance in monitoring compliance as well as prevention of drug interactions.

Interestingly, almost two thirds (65 percent) of the consumers ranked the pharmacist as the primary source of information about nonprescription drugs. In an earlier study of rural consumers, Norwood et al. (1976) found that pharmacists were thought to be extremely important as advisors concerning drugs, poisons and sickroom supplies.

In the National Pharmacy Consumer Survey (Stover, 1996) patients were asked whether they would be interested in pharmaceutical care type services. Specifically, they were asked if they would be interested in a service where a pharmacist would 1) review the patient's medical history and develop a plan for taking the medication properly, 2) meet with the patient to discuss the medication plans and answer questions, 3) recommend changes in the treatment plan to physicians and 4) contact the patient occasionally to discuss how well the medication is working and any side effects the patient may be experiencing. The majority of patients (69 percent) had a favorable attitude toward those services.

### Changing Patients' Views of Pharmacy

Early research by Norwood (1975) suggests that by improving patient communication about drug therapy, consumers' attitudes toward pharmacy can be improved. Consumer attitudes were measured using a scale that included items such as patient reports about whether or not the pharmacist had a good knowledge of health problems and of medications. In a study designed to determine the effect of written information on compliance, Gotsch and Liguori (1982) found that patients in the experimental group, who received written information, reported interest in receiving

patient package inserts routinely with new prescriptions. Berardo and Kimberlin (1987) showed that when pharmacists are trained to provide medication information, they can change patients' attitudes toward pharmacists. Most patients (91 percent) interacting with pharmacists who provided them with written and oral information reported that the pharmacists showed personal concern. Erstad et al. (1994) conducted a study in which a randomized experimental group received increased contact with the pharmacist. Patients in the experimental group reported being more satisfied with the increased levels of pharmacy service as well as appreciating the greater contact. Patients also reported desiring more contact with the pharmacist.

Patients may be uncertain of appropriate behavior for their role in the pharmacy. Chewning and Schommer (1996) studied the effect of providing patients with a pamphlet which described potential pharmacy services to patients on patients' knowledge of pharmacists' roles. Patients who received the pamphlet demonstrated significantly more knowledge about pharmacists' abilities than those who did not. Patients cite embarrassment and ignorance that it was appropriate to seek information from pharmacists as reasons they did not do so more often (Chewning and Schommer, 1996). This suggests that patients, too, use cues from pharmacists to define their relationship.

In summary, research suggests patients value contact with the pharmacist and feel the interactions can be helpful. In other words, from the patients' direct perspective, pharmacy services are quite beneficial. Even when patients have not had interaction with a pharmacist in the past, it appears that direct perspectives can be

altered by experience. If patients are given more opportunity to interact with pharmacists, they appreciate it and come to prefer it. As pharmacists attempt to gauge the type of services the patient would like to receive, they undertake a risk of misunderstanding patients' desires. In order to more accurately direct services to patients' wishes, pharmacists must first understand what those wishes are. Further, pharmacists must understand that patients may not expect a high level of interaction from the pharmacist based on past experiences, but that when additional interaction with the pharmacist and additional information about medications are provided, patients respond favorably.

### Summary

Both pharmacists and patients rely on perceptions of one another to define their relationships. Patients report feeling embarrassed or being unaware that it was appropriate to seek information from pharmacists and that pharmacists are too busy or were rude. They also suggested that pharmacists "give direct clues that they expect and want to take an active patient consultation role" (Chewning and Schommer, 1996; p.1303). Yet, when patient expectations are met or exceeded, higher levels of patient satisfaction are found (Schommer, 1995). Pharmacists report utilizing their perceptions of patient attitudes to determine the extent of counseling they provide (Schommer, 1994b; Schommer and Wiederholt, 1994a).

From the literature detailing pharmacists' and patients' perceptions about their interaction, inferences can be made about the relationships between their perceptions.

According to the comparisons made in using the Interpersonal Perception Method (IPM), of interest is whether pharmacists and patients agree on the issue of patient counseling from a pharmaceutical care perspective; whether each group understands or misunderstands the other, whether each group realizes or fails to realize that they are understood or misunderstood; and finally, whether each group feels understood. Research suggests that pharmacists recognize the benefits of offering their expertise to patients (Schommer and Wiederholt, 1994b; Ortiz et al., 1984; Oliver and Barnes 1983; Kirking, 1982) and patients recognize the benefit of that information as well (Stover, 1996; Erstad et al., 1994; Carroll and Gagnon, 1984; Gotsch and Liguori, 1982; Norwood et al., 1976). For example, McGhan et al. (1980) found a high correlation (0.89) between pharmacists' and consumers' rankings of pharmacy services. Pharmacists' and patients' direct perspectives seem to be similar, which implies that they may agree on the types of pharmaceutical care services they perceive as beneficial for patients.

Recent surveys of pharmacists (Herrier and Boyce, 1994; Schommer and Wiederholt, 1994; Rumore et al., 1995) have shown that pharmacists identify patient-related factors as barriers to counseling. Pharmacists in these studies perceived patients to be in a hurry or uninterested in receiving additional information about their medications. To the contrary, patients report wanting more information (Erstad et al., 1994; Hirsch et al., 1990) and valuing the information provided by pharmacists (Gagnon, 1994; Carroll and Gagnon, 1984; Norwood et al., 1976). This suggests that pharmacists metaperspectives are not congruent with patients' direct perspectives,

which would indicate that pharmacists misunderstand patients' perceptions of counseling. Patients, too, may misunderstand pharmacists' perceptions of counseling behavior (Gagnon, 1978; Chewning and Schommer, 1996). One study found that some patients believe that pharmacists were deliberately withholding information from them (Hirsch et al., 1990). Based on the experiences patients have traditionally had in pharmacies, they may not understand what pharmacists are capable of providing for them (Chewning and Schommer, 1996; Erstad et al., 1994). Because patients are unaccustomed to the additional attention of a pharmacist, they may believe that pharmacists perceive it to be unnecessary. Patients' metaperspectives do not seem congruent with pharmacists' direct perspectives, which indicates that patients may misunderstand pharmacists' perceptions of the benefits of pharmaceutical care type services. Thus, both pharmacists and patients may misunderstand the other's perceptions of the benefits of counseling and fail to recognize their misunderstanding of each other.

Little research exists as a basis for hypotheses about pharmacists' and patients' realization of their misunderstanding because no research has examined pharmacists' and patients' meta-metaperspectives directly. Pharmacists cite many barriers (e.g. pharmacist-related or financial barriers) to counseling in the community setting including patient demand. Logically, however, if pharmacists realized patients' desire for counseling, patient demand would not be one of the perceived barriers they cite. It seems that pharmacists may fail to realize that patients misunderstand them. It also seems that patients fail to realize that pharmacists misunderstand their perceptions.

Researchers (Herrier and Boyce, 1994; Schommer and Wiederholt, 1994b; Schommer 1994a) have found that pharmacists consider patient desire for counseling as a factor in deciding when to provide counseling. Patients report desiring more information, yet pharmacists report perceiving them as uninterested. Perhaps if patients were to realize that pharmacists perceived them to be in a hurry or uninterested, they would make their views about counseling known.

Because of the suggestions that pharmacists and patients misunderstand each other and each group fails to realize that the other group misunderstands them, as described above, both groups feel misunderstood by the other with regard to patient counseling activities. Further, because of the external barriers reported by pharmacists, perhaps pharmacists feel that patients would not understand their perceptions of the benefits of pharmaceutical care services. Finally, patients might expect that if the pharmacist was aware of their desires for additional information, the pharmacist would indeed provide counseling.

In order to predict pharmacists' behavior, it is logical to consider pharmacists' perceptions of that behavior. Because pharmacists claim to consider patient demand when providing counseling services (Herrier and Boyce, 1994; Schommer and Wiederholt, 1994b; Schommer 1994a), it is reasonable to expect pharmacists' understanding of patient perceptions to predict their behavior. Also, their agreement with patients as to the benefits of that behavior is likely to be a strong predictor of that behavior. Other data from the IPM, such as pharmacists' realization that patients understand (or misunderstand) them and pharmacists' feelings of being understood (or

misunderstood), are likely to be weaker predictors of their behavior but will be included in the analysis because they represent pharmacists' perceptions.

### Research Hypotheses

Based on the literature and theory of interpersonal perception and literature regarding pharmacists' and patients' perceptions of pharmaceutical care, the following hypotheses were proposed.

- H<sub>1</sub> Pharmacists and patients agree on the types of pharmaceutical care services they perceive as beneficial for patients if provided by pharmacists.
- H<sub>2a</sub> Pharmacists misunderstand patients perceptions of the benefits of pharmaceutical care type services.
- H<sub>2b</sub> Patients misunderstand pharmacists' perceptions of the benefits of pharmaceutical care type services.
- H<sub>3a</sub> Pharmacists fail to realize that patients misunderstand their perceptions of the benefits of pharmaceutical care type services.
- H<sub>3b</sub> Patients fail to realize that pharmacists misunderstand their perceptions of pharmaceutical care type services.
- H<sub>4a</sub> Pharmacists feel misunderstood by patients with regard to pharmaceutical care type services.
- H<sub>4b</sub> Patients feel misunderstood by pharmacists with regard to pharmaceutical care type services.

- H<sub>5</sub> The level of pharmaceutical care type services reported by pharmacists is predictable from the level of pharmacists' agreement, level of pharmacists' understanding, level of pharmacists' realizations and level of pharmacists' feeling understood.

## CHAPTER 4 METHODOLOGY

### Overview

This study investigated the relationships between pharmacists' and patients' perceptions of the benefits of pharmaceutical care type services and the extent to which those services are provided by pharmacists. By implementing an adapted version of the Interpersonal Perception Method, pharmacists' and patients' perceptions were compared to determine the extent to which i) pharmacists and patients agree on the types of services they perceive would be beneficial for patients if provided by pharmacists, ii) pharmacists understand patients' perceptions of these services, iii) patients understand pharmacists' perceptions of these services, iv) pharmacists realize that patients understand their perceptions of these services, v) patients realize that pharmacists understand their perceptions of these services, vi) pharmacists feel understood by patients with regard to the provision of pharmacy services, vii) patients feel understood by pharmacists with regard to the provision of pharmacy services and viii) the preceding factors predict pharmacists' reported provision of pharmaceutical care type services. Data were collected via telephone interviews from both pharmacists and patients throughout the state of Florida to characterize and compare their perceptions. The remainder of this chapter describes instrument development and validation, data collection procedures, study variables and data analysis.

### Instrument Development and Validation

#### Interpersonal Method--Pharmaceutical Care Questionnaire

The interpersonal perception method was applied to aid in understanding pharmacists' and patients' perceptions of beneficial pharmaceutical care type services. The instrument included modified items from the Pharmaceutical Care Questionnaire (PCQ) developed by Badejogbin (1994) as well as questions about the types of activities pharmacists would perform if they were practicing according to the pharmaceutical care practice model. These activities represented the domains of patient assessment, patient consultation, patient record screening, implementation of therapeutic objectives, documentation of patients' medical information and verification of patient understanding. PCQ questions were chosen based on the visibility of the tasks to patients and were modified to lay language. Some pharmaceutical care activities such as documenting information may not be visible to patients. Because the visibility of these services may be low and patients unaware of their benefit, these items were not used. In addition to the relevant PCQ questions chosen, questions specific to the communication that occurs between pharmacist and patient were developed through a review of relevant literature to enhance the domain of patient consultation.

Once the items were generated, questions were worded to reflect the interpersonal perception method. This involved phrasing the questions as statements from each of the perspectives. For example, items on the patient questionnaire were phrased from the patient's perspective, what the patient believes the pharmacist thinks and finally what the patient thinks the pharmacist thinks of the patient's beliefs.

Consider the item "discuss the patient's drug therapy with him or her." On the patient questionnaire this item appeared in the following forms: 1) the patient's direct perspective "I think it would be beneficial if my pharmacist were to discuss my drug therapy with me," 2) the patient's metaperspective "My pharmacist would say 'I think it would be beneficial for my patients if I were to discuss the patient's drug therapy with him or her,'" and 3) the patient's meta-metaperspective "My pharmacist thinks I would say 'I think it would be beneficial if my pharmacist were to discuss my drug therapy with me.'"

The pharmacists' questionnaire included identical items although they were originally phrased from the pharmacist's perspective and led to the pharmacist's perception of the patient's perspective and finally to what the pharmacist thinks the patients think about the pharmacists' beliefs. Continuing with the same example, items appeared in the following forms: 1) the pharmacist's direct perspective "I think it would be beneficial for my patients if I were to discuss the patient's drug therapy with him or her," 2) the pharmacist's metaperspective "My patients would say 'I think it would be beneficial if my pharmacist were to discuss my drug therapy with me,'" and 3) the pharmacist's meta-metaperspective "My patients think I would say 'I think it would be beneficial for my patients if I were to discuss the patient's drug therapy with him or her.'"

Fourteen items were included in the original version of the Interpersonal Perception Method-Pharmaceutical Care (IPM-PC) questionnaire for patients and pharmacists (see Appendix A). The items were scaled on a 7-point scale with the

anchors of 'strongly agree' and 'strongly disagree'. A 7-point rather than a 5-point scale was chosen to elicit greater variability in response to the items.

### Pretest of Instrument

A small number of patients and pharmacists (five each) were asked to complete the instrument and were interviewed after completing the instrument to discuss any problems they had in understanding the questions and to comment on the ease of completing the instrument. Of particular concern were the statements from the meta-metaperspective. As Drewery (1969) suggests, respondents may be confused by the phrasing of meta-metaperspective items and have difficulty completing them. If that was found to be the case, items would have been converted to direct questions of feeling understood, or eliminated if necessary. This was not the case, however, because the pharmacists and patients who completed the survey reported being able to understand the questionnaire. When asked to explain their understanding of the three perspectives, all of the pharmacists and four of the five patients gave accurate descriptions of the perspectives. This suggested that it was reasonable to include the meta-metaperspectives statements in the pilot study. Few editorial revisions were made to the instrument prior to a larger pilot study of approximately 30 pharmacists and 30 patients.

Sampling Procedure. Pharmacists were selected randomly from the current listing of active pharmacists in the state of Florida. The database received from the Board of Professional Regulations included pharmacists' home address. Only pharmacists residing in the state of Florida were included. Because the database did not

include home telephone numbers, once names were randomly selected, pharmacists' home phone numbers were looked up in the most recent telephone directories for their cities. A world wide web site (Database America) was also used to attempt to identify phone numbers that were unlisted in the city directories.

In order to identify patients, a random sample of telephone numbers throughout the state of Florida was purchased, from Genesys, Inc., by the survey research firm assisting with the interviews. The sample purchased was a random digit dial sample from which certain exchanges known to be primarily business numbers had been eliminated.

Interview procedure. Data collection was via telephone interview by the Florida Survey Research Center at the University of Florida. This methodology was chosen for data collection because of the ease of obtaining the data and the increased response rates over mail questionnaires (Dillman, 1978). Both pharmacist and patient interviews were completed between March 10 and March 14, 1997. Individuals were contacted by telephone by trained interviewers between the hours of five pm and nine pm. Interviewers recorded the results of each telephone call (e.g. if there was no answer, busy signal, answering machine etc.) and attempted to contact each individual three times.

All interviews began with identification of the interviewer, and an explanation that the interviewer was calling from the University of Florida. This was followed with a brief description of the survey. Respondents were informed that their participation in the study was voluntary and verbal consent was obtained from each participant prior to

establishing eligibility. At that point, respondents were screened to determine if they were eligible to participate in the survey. Pharmacists were asked in what type of setting they practiced. Only those pharmacists who practiced in the community setting were eligible to complete the survey. Patients were asked if there was someone in the household who had a prescription dispensed during the previous six months and if that person was over the age of 18. If that person was available, he or she was asked for consent to be interviewed. When respondents did not meet those criteria, they were thanked for their willingness to participate and the telephone call was terminated. Pharmacists and patients were called until 30 of each had completed the interview.

Patient questionnaires included the interpersonal perception method questionnaire (IPM-PC) assessing how beneficial they perceived the pharmacy services would be to them if they were provided by their pharmacist. Information about the patient such as the number of prescription medications currently being taken, number of pharmacies visited on a regular basis and number of times in the past six months they have had a prescription dispensed was also collected. Questions were asked about patients' experience with pharmacists including; "Do you know the name of the pharmacist who usually fills your prescriptions?," "Does your pharmacist usually volunteer information about your medicine when you get a new prescription filled?," "Does your pharmacist usually ask if you are having any problems when you get a refill?," and "What type of pharmacy do you go to?." Demographic information including age, gender, level of education and income was also collected. The mean length of patients' interviews was 12.3 minutes (s.d. =3.6).

Pharmacist questionnaires included the interpersonal perception method questionnaire (IPM-PC) related to the types of pharmacy services they believed should be provided and the self-report measure of the pharmaceutical care type services they actually provided to patients (PCQ). Information about the pharmacist's education (e.g. type of degree held and number of years in practice) and information about the pharmacy (e.g. type of pharmacy and number of prescriptions dispensed per day) as well as demographic information about the pharmacist (age and gender) were collected. The mean length of pharmacists' interviews was 17.8 (s.d. = 2.8) minutes.

Data was entered to a SAS file by the Florida Survey Research Center and was checked for errors via examination of the frequencies of the variables. Cases were also spot checked for accuracy of data entry after the file was obtained from the Research Center.

### Results of Instrument Pretest

Sample. Twenty eight pharmacists completed the questionnaire. Of those, 35 percent (N=10) were female. Half of the pharmacists (N=14) reported holding Bachelor of Science degrees, while 46 percent (N=13) reported holding Doctor of Pharmacy degrees. One pharmacist held both a Bachelor of Science and a Doctor of Pharmacy degree. Ten (36 percent) of the pharmacists had been in practice for over 20 years, eight (29 percent) reported being in practice between 11 and 20 years, and 10 (36 percent) had been in practice less than ten years. When asked to describe their practice, six (21 percent) pharmacists reported practicing in independent pharmacies, 12 (42 percent) reported practicing in drug chain store such as Eckerd's and 10 (36

percent) reported practicing in discount chain pharmacies such as WalMart. More than half of the pharmacists (54 percent, N=15) described their position as an employee pharmacist, 39 percent (N=11) described their position as a pharmacy manager, and 7 percent (N=2) described their position as pharmacy owner.

Thirty one respondents completed the patient version of the questionnaire. Of those, 68 percent (N=21) were female. Twenty-six percent (N=8) of the patients were over the age of 60 years, 36 percent (N=11) were between the ages of 40 and 60 years, and 48 percent (N=12) were between the ages of 18 and 39. Thirty-six percent (N=11) of patients reported patronizing a discount chain pharmacy such as WalMart, 36 percent (N=11) reported patronizing a drug chain such as Eckerd's, 10 percent (N=3) reported patronizing an independent pharmacy, 13 percent (N=4) reported patronizing a grocery store pharmacy, and 13 percent (N=4) reported using another type of pharmacy. Nine patients (29 percent) reported having an approximate household income of less than \$20,000, fifteen (49 percent) reported having an income between \$20,000-\$59,999, and four patients (13 percent) reported a household income greater than \$60,000.

Instrument. Responses to the pretest from pharmacists and patients indicated some problems with the instrument. Respondents indicated that the questions were sometimes confusing and that the questionnaire was too long. They also had difficulty with the 7-point range of responses. Based on the comments from the pretest, it was decided to reduce the number of items in an effort to shorten the questionnaire. This was intended to reduce the amount of time people were kept on the telephone and

increase response rate, but also to ensure that respondents would not be fatigued upon making the final transition to thinking from the meta-metaperspective. Also, it was decided that the range from one to seven may be too confusing. It is possible that it was more difficult for people to use the seven point response range over the telephone when compared to a written format of the questionnaire. The range was increased to one through ten in order to maximize variability while at the same time offering familiar response categories. Additionally, a ten point scale eliminates a true midpoint which elicits either positive or negative reactions from respondents.

Reliability. Statistical procedures were used to assess the reliability of each instrument and to determine which items would be eliminated. Internal consistency reliability is designed to measure the extent to which the items in an instrument are homogeneous. Cronbach's alpha was used to establish the internal consistency of the subscales IPM-PC (direct, metaperspective and meta-metaperspective scales for pharmacists and patients). These reliabilities can be found in Table 4-1.

Table 4-1. Reliabilities of Pretest Scales

Scale	Original Alpha Fourteen Items	Revised Alpha Seven Items
Pharmacists		
Direct	0.87	0.82
Meta	0.90	0.82
Meta-Meta	0.96	0.91
Patients		
Direct	0.90	0.83
Meta	0.97	0.92
Meta-Meta	0.98	0.95

In addition, the inter-item correlation matrices and corrected item to total correlations were analyzed to determine whether any item did not meet criteria for inclusion in a summated scale. Table 4-2 (page 75) lists the corrected item to total correlations and alpha coefficients for pharmacists' scales while Table 4-3 (page 76) provides the same information for the patients' scales. Some suggest that acceptable correlations should be 0.50 or greater (Bearden et al., 1989); however, Nunnally (1978) suggests that corrected correlations of greater than 0.30 are sufficient. For this study, corrected item to total correlations greater than 0.30 were considered acceptable.

Modifications. In making decisions regarding the modifications of the instrument, results from both pharmacists' and patients' questionnaires were reviewed. The consensus of pretest subjects was that the instrument needed to be shortened. One way of accomplishing this was to eliminate items from domains represented by more than one item. Also, the relative visibility of each behavior to patients was reconsidered in determining which items would be included in the questionnaire. Table 4-4 (page 77) details the Interpersonal Perception Method-Pharmaceutical Care items and pharmaceutical care domains they represent. In revising the instrument, items A ("Explain to patients how to use their medication(s)") and B ("Tell patients about other drugs which may cause problems with their medication(s)") were selected to represent the domain of consultation (provision of information). Items F ("Ask patients questions to find out if they might be having any problems with their medications") and J ("Ask patients questions to figure out if their goal(s) for their medication(s) are being reached") were selected to represent the domain of assessment. Items K and L were

merged to form one item ("Design and carry out follow-up plans to measure my progress toward my goal(s) for my medication(s).") which represented implementation of therapeutic plans. Item H ("Carry out plans to solve (or prevent) problems with patients' medications") was also included in the domain of implementation. Finally, item N ("Make sure that patients understand the information given to them") was included for the domain of verification of patient understanding.

Content validity of the revised IPM-PC was assessed via a panel of experts who matched items to the performance domains to ensure that the scale represented the intended behavior domain.

### Procedure

Pharmacist and patient interviews were conducted according to the procedure followed for the pretest, described earlier in this chapter. Patient data were collected over a period of four days from March 24 through March 28, 1997. Pharmacist data were collected over a period of four days from April 8 through April 11, 1997.

The necessary sample size was determined based the standard deviation and means for the scale variables from the pretest data using ST-plan (Brown et al., 1993) software. In order to detect differences between the group means using T-tests and based on achieving a statistical power of 0.80 and a Type I error rate of 0.05, sample size estimates were calculated for each of the comparisons to be made with the interpersonal perception method. The largest sample size was needed to detect differences between pharmacists' metaperspective and patients' direct perspective. For this comparison, the

sample size estimate was 150 respondents. Estimates made based on the other IPM comparisons resulted in fewer respondents needed. Thus, 150 was chosen as the desired sample size for pharmacist and patient groups.

### Study Variables

According to the interpersonal perception method, by comparing the three perspectives (direct, metaperspective and meta-metaperspective), agreement, understanding, realization of understanding and feeling understood can be calculated for pharmacists and patients. Using the IPM-PC questionnaire, data were collected from patients and pharmacists for all three of the perspectives. The questionnaire addressed the perceived benefits of pharmacists engaging in behavior that is consistent with a pharmaceutical care approach to patient counseling. Specific examples include whether or not it would be beneficial to patients if the pharmacist were to discuss potential side effects of medications with patients; ask if patients have any questions to ask of the pharmacist; and, address questions or concerns patients have. See Appendix B for the final version of the questionnaire. The operational definitions of the variables appear below.

#### Direct Perspective (Pharmacist and Patient)

The "direct perspective" is the pharmacist's or patient's perceptions of the benefits of pharmaceutical care type services derived from the responses to the IPM-PC from the first level of perception--one's own. "Patient Direct Perspective" is a summed score of the patients' responses to the items from the direct perspective (items 1a-1g on

patient questionnaire). These items addressed perceived benefits to patients of pharmacist activities of patient assessment, patient consultation, record screening, implementation of therapeutic plans and patient understanding verification. The parallel variable, "Pharmacists' Direct Perspective", is calculated based on the pharmacists' direct perspective statements (items 1a-1g on pharmacist questionnaire). Each item was measured on a 10 point scale anchored by "strongly disagree" (1) and "strongly agree" (10). Because the questionnaire included 7 items, the potential range of scores for the overall direct perspective variables is from 7 to 70.

#### Metaperspective (Pharmacist and Patient)

The "metaperspective" represents the pharmacist's or patient's responses to the IPM-PC items from the second level of perception--the other person's. This is a measure of pharmacists' and patients' perceptions of each other's perceptions of the benefits of the pharmaceutical care type services. Specifically, pharmacists' responded based on how they thought their patients would answer. Likewise, patients responded based on how they thought their pharmacist would answer. A summated score of patients' metaperspective scores responses (items 2a-2g on patient questionnaire) yielded "Patients' Metaperspective", and a summed score of pharmacists' metaperspective responses (items 2a-2g on pharmacist questionnaire) yielded "Pharmacists' Metaperspective". An overall metaperspective score for the IPM-PC questionnaire was calculated like the direct perspective score described above. It was measured on a 10 point scale anchored by "strongly disagree" (1) and "strongly agree"

(10). The potential range of scores for the overall metaperspective variable is the same as the direct perspective score range (7 to 70).

#### Meta-Metaperspective (Pharmacist and Patient)

The "meta-metaperspective" represents responses to the IPM-PC questionnaire from the third level of perception--one's perception of another's perception of one's own perception of the benefits to the patient of pharmaceutical care type services. Pharmacists' responses to the meta-metaperspective versions of the items (3a-3g on the pharmacist questionnaire) were summed to calculate the variable "Pharmacists' Meta-metaperspective". Likewise, patients' responses to the meta-metaperspective versions of the items (items 3a-3g on patient questionnaire) were summed to create the variable "Patients' Meta-metaperspective". Responses were measured on a 10 point scale anchored by "strongly disagree" (1) and "strongly agree" (10). The potential range of scores for the overall instrument on the meta-metaperspective variables is the same as described under the direct perspective.

#### Level of Pharmaceutical Care: The Pharmaceutical Care Questionnaire (PCQ)

The dependent variable in this study is the extent to which pharmacists engage in pharmaceutical care type activities when interacting with their patients. Using the Pharmaceutical Care Questionnaire (PCQ) (Badejogbin, 1994), pharmacists' self-report of behavior was used as the measure of the types of services which they actually offer to their patients. The PCQ asks the pharmacist to recall the last five patients who presented a new or refill prescription for a medication used to treat a chronic condition and to indicate with how many of these patients the pharmacist pursued patient specific

information sharing and discussion. Examples of pharmacist behavior include asking what the patient would like to achieve from therapy, discussing the patient's drug therapy and documenting all medication currently being taken by the patient. Further, the PCQ asks what action was taken, if any, if a drug-related problem was detected. The activities measured by the PCQ can be divided into six domains including 1) documentation activities, 2) patient assessment activities, 3) therapeutic objective implementation activities, 4) patient consultation, 5) patient understanding verification and 6) record screening activity (Badejogbin, 1994). Pharmacist response scores were summed based on the number of patients they indicate for each question (0-5). There are eighteen questions over the six domains in the PCQ, thus, the total potential score is 90 for the overall instrument. Each of the six domains is described below.

Documentation. The domain of documentation included six items. They include whether the pharmacist documented information about a) the patients' medical condition, b) all medications currently being taken, c) the therapeutic objective, d) any drug-related problems, and e) the therapeutic objective for each of the drug-related problems identified and any interventions made. The range of scores is from zero to thirty for this subscale.

Assessment. The domain of patient assessment was also comprised of six items. These included, a) asking the patient to describe his/her medical condition, b) asking what he/she wants to achieve from drug therapy, c) assessing patterns of actual medication use, d) assessing whether the patient is experiencing any drug-related problems, and e) assessing the patients' perceptions of the effectiveness of medications

and assessing whether the therapeutic objectives are being reached. Again, the range of scores for this subscale was from zero to thirty.

Implementation. Implementation of therapeutic objectives was a domain measured using three items. The range of scores possible for this subscale is from zero to fifteen. The items include whether the pharmacist a) implemented a strategy to resolve any drug-related problems, b) established follow-up plans to evaluate progress toward therapeutic objectives, and c) carried out the established follow up plans.

Screening. Patient record screening was a domain measured using one item to assess the frequency of pharmacists checking patient records for potential drug related problems. Since this subscale was measured using one item, the range of scores was from zero to five.

Consultation. The domain of consultation most directly addresses the communication between pharmacists and patients. It was measured by the item assessing the frequency of pharmacists discussing the patient's drug therapy with the patient. The range of scores for this subscale was from zero to five.

Verification. Verification of patient understanding was a domain measured using an item asking pharmacists the frequency with which they verified patient understanding of the information which was presented. In the factor analysis conducted by Badejogbin (1994), this item was found to be a separate domain. The range of scores for this subscale was from zero to five.

In a survey of 793 community pharmacists, the overall reliability of the PCQ was found to be 0.88 (Badejogbin, 1994). The reliabilities of the six domains were

found to be as follows: 0.72 for documentation, 0.90 for patient assessment and 0.74 for therapeutic objective implementation. The reliabilities for the other three domains (patient record screening, patient consultation and patient understanding verification) were not calculated because they were measured by a single item.

### Pharmaceutical Care Score II

Pharmaceutical care score II was a variable which measured the extent to which pharmacists engaged in the pharmaceutical care activities described above that were included in the IPM-PC questionnaire. Thus, it measures the extent to which pharmacists engage in the behaviors, visible to patients, that they were asked to respond to about how beneficial they are for patients. The PCQ items included in this variable are as follows i) "verify that the patient understands the information I present to him or her," ii) "discuss the patient's drug therapy with him or her," iii) "ask the patient questions to find out if he/she is experiencing drug-related problems," iv) "ask the patient questions to ascertain whether the therapeutic objective(s) is (are) being reached," v) "implement a strategy to resolve (or prevent) the drug related problems," vi) "establish follow-up plans to evaluate the patient's progress toward his/her drug therapy objectives" and vii) "carried out the follow up plans established for the patient's progress toward his/her drug therapy." PC-2 was calculated as a summated score of the PCQ items listed above.

### Pharmacists' Agreement

Pharmacists' agreement is the extent to which a pharmacist is in agreement with patients' on the responses to the IPM-PC scale. It was calculated for each pharmacist

as a difference score between the pharmacist's total score for the overall instrument and the mean of all patients' responses on the scale. As a difference score, the scores for this variable can range from the negative value of the largest difference (-63) to the positive value of the largest difference possible (+63). The largest difference possible is calculated based on the minimum and maximum potential scores for the scale, which are seven and 70 respectively for the seven-item instrument. The difference between them, 63, represents the largest potential difference score. Thus, the potential range of scores for this variable is -63 to +63. According to the Interpersonal Perception Method, a comparison from the pharmacists' perspective is made by entering the pharmacists' perspective first. Thus, a positive value would imply that pharmacists rated the items higher than patients. In other words, a positive difference suggests that pharmacists believed the pharmacy services would be more beneficial than patients did. On the other hand, a negative value would suggest that pharmacists believed the pharmacy services would be less beneficial than patients did.

### Pharmacists' Understanding

Pharmacists' understanding is the extent to which pharmacists understand patients with regard to pharmaceutical care activities. It was calculated according to the interpersonal perception method by comparing the pharmacists' metaperspective to the patients' direct perspective. This comparison was made for each pharmacist based on their overall metaperspective score compared to patients' mean overall direct perspective score. This difference score was used in the multiple regression. As discussed above, the potential range of scores for the seven-item instrument on this

variable is -63 to 63. For this variable, a positive value would suggest that pharmacists rated patients' perceptions of the services higher than the patients actually did. A negative value would suggest that pharmacists rated patients' perceptions of the pharmacy services lower than the patients actually did, or in other words, that patients perceived the services as more beneficial than pharmacists thought they would.

### Pharmacists' Realization

Pharmacist realization is the extent to which pharmacists realize that patients understand them. It was derived by comparing pharmacists' meta-metaperspective to patients' metaperspective. Pharmacists' individual responses were compared to mean patient responses on the overall scale to calculate the difference score. Accordingly, the potential range of scores is from -63 to +63. A positive value would suggest that the pharmacist rated patients' perceptions of pharmacists' perceptions of the services higher than the patients actually did, while a negative value would suggest that pharmacists rated patients' beliefs about pharmacists' perceptions of the pharmacy services lower than the patients actually did, or in other words, that patients perceived that pharmacists would rate the services as more beneficial than pharmacists thought they would.

### Pharmacists' Feeling Understood

Pharmacists' feeling understood is derived by comparing pharmacists' meta-metaperspective with pharmacists' own direct perspective and was calculated as a difference score on the overall scale between these two perspectives for each pharmacist. The potential range of scores for this variable is from -63 to +63. A

positive value would suggest that the pharmacist believed patients' perceptions of pharmacists' opinion higher than the pharmacist actually did. On the other hand, a negative value would suggest that the pharmacist believed patients perceived pharmacists' answers lower than the pharmacists themselves actually did.

### Analyses

Descriptive information about the sample and the variables was examined. Associations between the IPM-PC and PCQ questionnaires were examined. In addition, associations between patients' perceptions of the benefits of pharmaceutical care type services and their pharmacy patronage were explored. The following analyses were carried out to test the hypotheses.

H<sub>1</sub>: Pharmacists and patients agree on the types of pharmaceutical care type services they perceive would be beneficial for patients.

A sum of the item scores for both the pharmacists' direct perspective ("I think it would be beneficial for my patients if I were to discuss the patient's drug therapy with him or her") and patients' direct perspective ("I think it would be beneficial if my pharmacist were to discuss my drug therapy with me") on the IPM-PC questionnaire was calculated. A T-test between means of the summated scale scores was conducted to determine if pharmacists and patients disagree on the type of pharmacy services they believe would be beneficial. Significant difference between the means would indicate that pharmacists and patients disagree on the overall scale. According to the Interpersonal Perception Method, a nonsignificant difference would mean that

pharmacists and patients do agree on the types of services they believe would be beneficial. Alpha was set at 0.10 in order to reduce the risk of committing a Type II error.

$H_{2a}$ : Pharmacists misunderstand patients' perceptions of the benefits of pharmaceutical care type services.

In order to test this hypothesis, the scores from the pharmacists' metaperspectives ("My patients would say 'I think it would be beneficial if my pharmacist were to discuss my drug therapy with me'") were compared to the patients' direct perspectives ("I think it would be beneficial if my pharmacist were to discuss my drug therapy with me"). An independent samples T-test was conducted between pharmacists' and patients' mean scores. Alpha was set at 0.05 for this and the remaining analyses. A significant difference would indicate that pharmacists misunderstand patients' perceptions about the type of pharmacy services which patients believe would be beneficial. According to the Interpersonal Perception Method, a nonsignificant difference would indicate that pharmacists understand patients' perceptions of the benefits of pharmaceutical care type services.

$H_{2b}$ . Patients misunderstand pharmacists' perceptions of the benefits of pharmaceutical care type services.

In this case, patients' metaperspectives ("My pharmacist would say 'I think it would be beneficial for my patients if I were to discuss the patient's drug therapy with him or her'") were compared to pharmacists' direct perspectives ("I think it would be beneficial for my patients if I were to discuss the patient's drug therapy with him or

her"). An independent samples T-test was used to compare patients' and pharmacists' mean scores. A significant difference between the means would indicate that patients misunderstand pharmacists' attitudes toward the types of services pharmacists believe would be beneficial. According to the IPM, a nonsignificant difference would indicate that patients understand pharmacists' perceptions of the benefits of pharmaceutical care type services.

$H_{3a}$ : Pharmacists fail to realize that patients misunderstand their perceptions of the benefits of pharmaceutical care type services.

To test this hypothesis comparisons between pharmacists' meta-metaperspectives ("My patients think I would say 'I think it would be beneficial for my patients if I were to discuss the patient's drug therapy with him or her'") and patients' metaperspectives ("My pharmacist would say 'I think it would be beneficial for my patients if I were to discuss the patient's drug therapy with him or her'") must be made. An independent samples T-test was conducted to compare the means of the pharmacists' meta-metaperspective to the patients' metaperspective score. A significant difference would indicate that pharmacists fail to realize that patients understand (or misunderstand) pharmacists' perceptions of the types of pharmacy services they believe to be beneficial. A nonsignificant difference would indicate that, according to the IPM, pharmacists realize that patients understand (or misunderstand) their perceptions of the benefits of pharmaceutical care type services.

H<sub>3b</sub>: Patients fail to realize that pharmacists misunderstand their perceptions of the benefits of pharmaceutical care type services.

In order to determine if patients realize or fail to realize that the pharmacist understands (or fails to understand) their perceptions, a comparison between the patients' meta-metaperspectives ("My pharmacist thinks I would say 'I think it would be beneficial if my pharmacist were to discuss my drug therapy with me'") and the pharmacists' metaperspectives ("My patients would say 'I think it would be beneficial if my pharmacist were to discuss my drug therapy with me'") was made. Again, this comparison was made using an independent samples T-test between patients' mean meta-metaperspective score and pharmacists' mean metaperspective score. A significant difference would indicate that patients fail to realize that pharmacists understand (misunderstand) patients' perceptions. A nonsignificant difference would indicate, according to the IPM, that patients realize that pharmacists understand (or misunderstand) their perceptions of the benefits of pharmaceutical care type services.

H<sub>4a</sub>: Pharmacists feel misunderstood by patients with regard to pharmaceutical care type services.

By comparing the pharmacists' meta-metaperspectives ("My patients think I would say 'I think it would be beneficial for my patients if I were to discuss the patient's drug therapy with him or her'") with the pharmacists' own direct perspectives ("I think it would be beneficial for my patients if I were to discuss the patient's drug therapy with him or her"), the pharmacists' feeling of being understood was analyzed. Pharmacists' mean direct perspective score was compared with pharmacists' mean

meta-metaperspective score using a paired samples T-test. A significant difference would indicate that pharmacists feel misunderstood by patients in regard to pharmaceutical care type services. Based on the IPM, a nonsignificant difference would mean that pharmacists feel understood by patients with regard to pharmaceutical care type services.

H<sub>4b</sub>: Patients feel misunderstood by pharmacists with regard to pharmaceutical care type services.

Likewise, in order to analyze patients' feelings of being understood, patients' meta-metaperspectives ("My pharmacist thinks I would say 'I think it would be beneficial if my pharmacist were to discuss my drug therapy with me'") was compared to patients' own direct perspective ("I think it would be beneficial if my pharmacist were to discuss my drug therapy with me"). Patients' mean meta-metaperspective score were compared with patients' mean direct perspective score by a paired samples T-test and a significant difference would indicate that patients feel misunderstood by pharmacists with regard to patient care services. Based on the IPM, a nonsignificant difference would mean patients feel understood by pharmacists with regard to pharmaceutical care type services.

H<sub>5</sub>: The level of pharmaceutical care type services reported by pharmacists will be predicted by the level of pharmacists' agreement, level of pharmacists' understanding, level of pharmacists' realization and level of pharmacists' feeling understood.

Pharmacists' self-report of pharmaceutical care type services was measured using the PCQ. Scores were summed to yield an overall pharmaceutical care score that

served as the dependent variable. Multiple regression analysis was conducted utilizing the difference scores of pharmacist agreement, pharmacist understanding, pharmacist realization and pharmacist feeling understood as the independent variables used to predict pharmacists self report of pharmaceutical care activities performed.

Subsequent analysis repeated the multiple regression utilizing PC-II as the dependent variable. This dependent variable represents the pharmaceutical care behaviors which are represented on the IPM-PC questionnaire. As in the previous analysis, the regression was conducted utilizing the independent variables of pharmacist agreement, pharmacist understanding, pharmacist realization and pharmacist feeling understood.

Table 4-2. Item to Total Correlations and Coefficient Alpha of Pharmacist Pretest Scales

Scale	Item-Total Correlation	Alpha if Item Deleted
Pharmacist: Direct		
A	0.57	0.87
B	0.69	0.86
C	0.54	0.87
D	0.11	0.87
E	0.60	0.86
F	0.35	0.87
G	0.46	0.87
H	0.74	0.85
I	0.45	0.87
J	0.79	0.85
K	0.53	0.87
L	0.70	0.86
M	0.62	0.86
N	0.47	0.87
Pharmacist: Meta		
A	0.65	0.89
B	0.68	0.89
C	0.71	0.89
D	0.07	0.91
E	0.71	0.89
F	0.72	0.89
G	0.33	0.90
H	0.53	0.89
I	0.85	0.88
J	0.87	0.88
K	0.85	0.88
L	0.65	0.89
M	0.51	0.90
N	0.41	0.90
Pharmacist: Meta-Meta		
A	0.81	0.96
B	0.87	0.96
C	0.85	0.96
D	0.83	0.96
E	0.87	0.96
F	0.80	0.96
G	0.69	0.96
H	0.81	0.96
I	0.84	0.96
J	0.79	0.96
K	0.76	0.96
L	0.74	0.96
M	0.77	0.96
N	0.77	0.96

Table 4-3. Item to Total Correlations and Coefficient Alpha of Patient Pretest Scales

Scale	Item-Total Correlation	Alpha if Item Deleted
Patient: Direct		
A	0.52	0.90
B	0.45	0.90
C	0.47	0.90
D	0.22	0.91
E	0.62	0.89
F	0.48	0.90
G	0.71	0.89
H	0.79	0.89
I	0.66	0.89
J	0.74	0.89
K	0.70	0.89
L	0.73	0.89
M	0.57	0.89
N	0.60	0.90
Patient: Meta		
A	0.61	0.97
B	0.69	0.96
C	0.82	0.96
D	0.71	0.96
E	0.83	0.96
F	0.89	0.96
G	0.80	0.96
H	0.86	0.96
I	0.80	0.96
J	0.86	0.96
K	0.85	0.96
L	0.86	0.96
M	0.82	0.96
N	0.80	0.96
Patient: Meta-Meta		
A	0.79	0.98
B	0.89	0.98
C	0.89	0.98
D	0.86	0.98
E	0.88	0.98
F	0.86	0.98
G	0.90	0.98
H	0.88	0.98
I	0.89	0.98
J	0.89	0.98
K	0.86	0.98
L	0.87	0.98
M	0.88	0.98
N	0.84	0.98

Table 4-4. Interpersonal Perception Method-Pharmaceutical Care Items and Pharmaceutical Care Domains

Interpersonal Perception Method-Pharmaceutical Care Item	Pharmaceutical Care Domain
<p>A. Explain to patients how to use their medication(s).</p> <p>B. Tell patients about other drugs which may cause problems with their medication(s).</p> <p>C. Tell patients about possible side effects of their medication(s).</p> <p>D. Ask patients if they have any questions to ask.</p> <p>M. Answer any questions or concerns patients may have.</p>	Consultation
<p>E. Ask patients questions to find out how well they think the medication(s) they are taking is/are working.</p> <p>F. Ask patients questions to find out if they might be having any problems with their medications.</p> <p>I. Ask patients what they want to achieve by taking their medication(s).</p> <p>J. Ask patients questions to figure out if their goal(s) for their medication(s) are being reached.</p>	Assessment
<p>G. Check patients' records for potential problems with their medication(s).</p>	Screening
<p>H. Carry out plans to solve (or prevent) problems with patients' medications.</p> <p>K. Design follow-up plans to measure patients' progress toward their goal(s) for their medication(s).</p> <p>L. Carry out the follow-up plans to measure patients' progress toward their goal(s) for their medication(s).</p>	Implementation
<p>N. Make sure that patients understand the information given to them.</p>	Patient Understanding Verification

## CHAPTER 5 RESULTS

### Characteristics of the Sample

#### Pharmacists

The final sample was comprised of 147 pharmacists practicing in the state of Florida in the community setting. Table 5-1 (page 102) describes the pharmacist sample and compares the sample with national estimates. When asked to describe their positions, 52 percent identified themselves as employee pharmacists, 39 percent as pharmacy managers, 5 percent as pharmacy owners and 3 percent described their position as "other." None of the pharmacists who indicated a different type of position indicated what position they held. Most of the pharmacists surveyed held Bachelor of Science degrees (85 percent), while several held both B.S. and Doctor of Pharmacy degrees (11.6 percent). Only 5.4 percent reported holding a Doctor of Pharmacy degree as the sole professional degree. Pharmacists were also asked to indicate how long they had been in practice. Twenty percent of the pharmacists had been in practice 1-5 years, 18 percent between 6-10 years, 12 percent 11-15 years, 14 percent 16-20 years and 37 percent reported practicing pharmacy for over 20 years. Males accounted for 65 percent of the sample.

Pharmacists also were asked to characterize the number of prescriptions that were dispensed in their pharmacies on an average day. Seventeen percent of pharmacists reported that under 100 prescriptions were dispensed, 27 percent reported that an average of between 100 and 299 prescriptions were dispensed daily, 27 percent reported that between 200 and 299 prescriptions were dispensed, 15 percent between 300 and 399, 8 percent between 400 and 499, and 7 percent 500 and over. The pharmacists' practice settings were also recorded. Thirty eight percent of pharmacists practiced in chain pharmacies such as Eckerd's, 31 percent in independent pharmacies and 31 percent in discount chain stores (such as WalMart). One pharmacist reported working at a health maintenance organization (HMO) outpatient pharmacy. Information regarding the distribution of pharmacists in the state of Florida was unavailable, so comparisons between the sample and national figures were made. By comparison, national figures show that 33 percent of pharmacists practice in independent community pharmacies and 33 percent practice in chain pharmacies (Martin, 1993). According to the study reported by Martin (1993) 86 percent of pharmacists hold a Bachelor of Science degree in pharmacy and the remaining 14 percent held either a Doctor of Pharmacy degree or both degrees. The sample seems to reflect the national distribution of pharmacists with respect to practice site, degree held, age and gender as found in the Pharmacy Manpower Project described by Martin (1993).

#### Pharmacist Nonresponse

The most recent list of registered pharmacists in Florida included 18,798 names, of which 12,239 listed addresses in Florida. From those residing in Florida, 1,700

pharmacists were randomly selected for identification of their telephone numbers. A total of 1,105 (65 percent) of the telephone numbers were identified from the most recent city directories available and Database America, a national online database including home address and telephone numbers. Only 947 of the 1,105 numbers were called when the sample size of 150 was reached. Of those, 150 were nonworking numbers, 35 were non-household numbers (business, cellular phone, fax number) and 64 were wrong numbers. Due to language barriers between the interviewer and the person who answered the telephone, 35 of the pharmacists were not reached. Twenty calls were not completed because the individual was deceased. Thus, 643 pharmacists were asked to complete the questionnaire. There were 205 (31.9 percent of calls) refusals, 291 (45.2 percent of calls) pharmacists were ineligible because they worked in hospital or mail order pharmacies or were no longer in practice and 150 pharmacists completed the questionnaire. Three of the pharmacists who completed the interview did not meet eligibility criteria. Because they practiced in the hospital setting, they were eliminated from the sample. Thus, 147 eligible pharmacists completed the questionnaire. The response rate of eligible pharmacists, assuming that all refusals came from eligible pharmacists, was 41 percent. This is the worst case estimate for the response rate since it is unknown what percentage of the pharmacists who refused to complete the questionnaire were, in fact, eligible for the study. The mean length of pharmacist interviews was 9.5 minutes (s.d.=2.7).

#### Patient Sample Characteristics

The final sample of patients included 151 consumers throughout Florida who had filled at least one prescription during the previous six months. Table 5-2 (page 103)

summarizes the characteristics of the patient sample in comparison to the 1990 census report (U.S. Department of Commerce Bureau of the Census, 1990).

Females accounted for two-thirds of the respondents (67 percent). According to the 1990 census, 52 percent of the population of Florida is female. The higher percentage of female respondents may be accounted for by the fact that women tend to complete questionnaires more often than men. Women also utilize health care, including prescriptions, more often than men (Cockerham, 1992). Most of the patients were under 50 years of age (66.3 percent). Approximately one-fourth of all patients (23 percent) were between the ages of 18 and 29 years, one-fifth were between 30 and 39 years (22 percent), one-fifth between 40 and 49 years (21 percent). Of those over the age of 50, 10 percent were between the ages of 50 and 59, 13 percent were between 60 and 69, and 11 percent were 70 years of age and older. This is consistent with the age distribution throughout the state of Florida. In Florida, approximately 23 percent of people are between the ages of 18 and 29, 20 percent between 30 and 39 years, 15 percent between 40 and 49 years, 12 percent between 50 and 59 years, and 30 percent over the age of 60 years (U.S. Census Report, 1990).

When asked to describe their education level, 34 percent reported having completed some college, 36 percent reported being college graduates (including post-baccalaureate degrees), 19 percent reported being high school graduates and 9 percent reported less than a high school education. By comparison, in the state of Florida, 25 percent have less than a high school degree, 30 percent have completed high school, 27 percent have completed some college, 10 percent have completed college and 9 percent

have a professional degree or have completed at least some graduate school. Seventeen percent of the patients reported annual household income below \$20,000.

Twenty five percent reported income between \$20,000 and \$39,999, 20 percent reported income between \$40,000 and \$59,999, 11 percent between \$60,000 and \$79,999 and 8.6 percent reported income in excess of \$80,000. Many patients declined to answer this question (19 percent). The categories used in this study to measure income are not consistent with the categories used in the U.S. census, however, for comparison, the census figures are included here. In the state of Florida, 15 percent of the population reports earning less than \$10,000 annually; 30 percent report incomes of between \$10,000 and \$24,999; 34 percent report household incomes between \$25,000 and \$49,999; and 21 percent report annual household incomes over \$50,000. Comparison figures for the population are shown in Table 5-2 (page 103). The sample seems to reflect a higher level of education than the overall population in Florida, although based on age this sample seems to reflect Florida's population.

### Pharmacy Patronage

In describing their pharmacy patronage, almost half of patients reported patronizing a large discount chain store, such as WalMart, for their prescriptions (47 percent). Another third reported patronizing smaller pharmacy chains such as Eckerd's (33 percent). Nine percent reported using an independent store, 6 percent used a grocery store and 5 percent reported using other types of pharmacies (such as an HMO pharmacy). This distribution of pharmacy patronage is comparable to national figures from the 1993 National Prescription Buyers Survey described by Meade (1994). Most

patients reported patronizing only one pharmacy on a regular basis (72 percent), 17 percent reported using two pharmacies, and 3 percent reported using three pharmacies on a regular basis. This, too, is consistent with other findings. According to Meade (1994), 75 percent of patients go to only one pharmacy to have their prescriptions dispensed. Most patients did not know the name of the pharmacist who usually fills their prescriptions (82 percent).

Finally, patients were asked to list what factors they considered when choosing a pharmacy. The most frequent response included insurance requirements (17 percent), location or convenience (38 percent) and price (17 percent). Customer services including friendliness (10 percent), hours (4 percent), knowledgeable pharmacists (3 percent) and efficiency (3 percent) were also named. One patient reported that the doctor had recommended a particular pharmacy. These figures vary slightly from those described by Meade (1994). By comparison, only 15 percent of those patients mentioned using a designated pharmacy, 28 percent reported location, 22 percent mentioned price and 20 percent named characteristics of pharmacists or staff. See Table 5-3 (page 104) for a description of the sample's pharmacy patronage.

Patients were also asked questions concerning their medication use including how many prescription medications were taken on a regular basis and how many new and refill prescriptions they had dispensed in the previous six months. In response to the number of prescription medications taken on a regular basis, answers ranged from zero to nine. Approximately one-third of the respondents used one prescription medication on a regular basis (34 percent). Twenty-seven percent reported not regularly using any

prescription medications. Fifteen percent reported using two prescriptions on a regular basis while 24 percent use three or more prescriptions on a regular basis.

When asked about number of new prescriptions in the previous six months, the range of responses was from zero to 12 with a mean of 1.7 (s.d.=2.0). Patients reported a range of zero to 48 refill prescriptions dispensed over the previous six months (mean  $4.1 \pm 6.6$ ). Twenty-five percent of respondents had no refill prescriptions dispensed over the past six months, 19 percent had one, 17 percent had 2. Twelve percent of patients had between 3 and 5 prescriptions dispensed while 15 percent had 6 refills. Thirteen percent of patients had over six prescriptions refilled in the previous six months.

When asked to describe their interaction with their pharmacist, 43 percent of patients reported that their pharmacist usually volunteers information when they have a prescription dispensed. This is consistent with the national figure (43 percent) reported by Meade (1994). Twenty-two percent of patients reported that their pharmacist usually asks if they are having any problems when they receive refill prescriptions. This is higher than the percentage reported (10 percent) for the control group of a study on the effects of an education program for pharmacists to help them detect drug-related problems in elderly patients (Kimberlin et al., 1993).

### Patient Nonresponse

A total of 744 telephone numbers were called. Of those, 251 were either nonworking numbers or were businesses rather than households and 35 calls were not completed due to a language barrier. Thus, 485 households were contacted for consent

to participate in the interview. There were 250 refusals (51.5 percent of calls) and 57 households (11.7 percent of calls) were ineligible, meaning there was no one in the household over the age of 18 who had a prescription dispensed in the previous six months. Although it is unknown what percent of patients who refused to complete the questionnaire were eligible, 151 patient interviews were completed yielding a response rate of 35 percent in the worst case assumption that all refusals were eligible. The mean length of patient interviews was 7.2 minutes (s.d.=3.0).

### Instrumentation

Factor analysis was used to establish the construct validity of the pharmacist and patient scales. The factor loadings for pharmacist and patient scales are presented in Table 5-4 (page 104) and Table 5-5 (page 105) respectively. Separate analyses of pharmacists' direct, metaperspective and meta-metaperspective responses (Table 5-4, p.105) indicated that at each level of perception, all the items were representative of one factor. This is inconsistent with the theoretical development of the questionnaire and will be discussed further in the final chapter.

Results from analysis of patients' direct and metaperspective responses (Table 5-5, p.106) showed that the items loaded on two factors. Based on direct perspective results, only one item seems to be representative of Factor 2, while the other six items loaded on Factor 1. Item G ("Tells me about other drugs which may cause problems with my medication(s)") loaded more highly on Factor 2--"Discuss problems" than on Factor 1--"Counseling." This suggested that the item represented a unique factor and

should not be included in the summated scores with the other items. Analysis of the metaperspective showed that item G loaded on both factors, but more highly on Factor 2--"Discuss problems." Item D ("Make sure I understand the information given to me") also loaded on Factor 2--"Discuss problems," but loaded more highly on Factor 1--"Counseling." Factor analysis of patients' meta-metaperspective revealed only one factor for all seven items. Crocker and Algina (1986) suggest that factor loadings less than 0.30 are usually considered unimportant, thus a loading of 0.30 was considered the criteria for inclusion in the scale score. All of the loadings for the items in Factor 1 were found to be greater than 0.30 in each of the perspectives, so all items were thus kept in the scale.

Internal consistency reliability of the summed scales was calculated using Cronbach's coefficient alpha. The overall reliability estimates for the pharmacists' and patients' direct perspective scales were 0.87 and 0.79 respectively (see Table 5-6, page 107 and Table 5-7, page 108). Corrected item-total correlations on the pharmacists' scale ranged from 0.54 to 0.81, while patients' ranged from 0.22 to 0.73. Item G ("Tell me about other drugs which may cause problems with my medication(s)") showed the lowest item to total correlation on the patients' scale (0.22), which is consistent with the results of the factor analysis. The overall reliability of the scale was at least 0.80 and was considered high .

Coefficient alpha estimates for the metaperspective and meta-metaperspectives scales are also presented in Tables 5-6 (p.107) and 5-7 (p.108). Coefficient alpha for pharmacists' metaperspective and meta-metaperspective scales were 0.90 and 0.93

respectively. Coefficient alpha for patients' scales were 0.86 and 0.91 respectively. All of the item to total correlations were greater than 0.50 with the exception of item G on patients' metaperspective scale. This was consistent with results from the direct perspective scale. Thus, item G was eliminated from all summated scales and was analyzed as an independent item. Coefficient alpha for the revised scales are also presented in Tables 5-6 (p.107) and 5-7 (p.108). There was little change in the coefficients after the deletion of item G. Coefficient alpha for patients' direct perspective scales increased from 0.79 to 0.80, metaperspective increased from 0.86 to 0.87, and for the meta-metaperspective coefficient alpha remained the same (0.91). Coefficient alpha for pharmacists' direct and metaperspective scales decreased slightly from 0.87 and 0.90 to 0.86 and 0.89 respectively. Pharmacists' meta-metaperspective scale showed no change in coefficient alpha (0.93).

### Descriptive Analysis

Distributions of items in the IPM and PCQ were examined. Scores covered the full range and indicated variability in response to items. Overall, pharmacists rated the provision of the pharmaceutical care type services as potentially more beneficial than patients. Means of pharmacists' and patients' responses to each item are presented in Table 5-8. Their direct perspective responses provide an indication of how potentially beneficial each group perceives the services to be. On the scale from one to ten, where ten represented strong agreement with the potential benefit of the service described, pharmacists consistently rated the items toward strong agreement. The range of mean

pharmacists responses on different items was from 7.7 (s.d.=2.4) to 9.4 (s.d.=1.3). This suggests that pharmacists perceive that the services would be of benefit to patients. Pharmacists believed that the most beneficial services would be to explain to patients how to use their medications ( $9.4 \pm 1.3$ ), to make sure patients understand the information given to them ( $9.2 \pm 1.5$ ) and to tell patients about other drugs which may cause problems with their medications ( $9.1 \pm 1.5$ ). Asking patients questions to find out if they might be having any problems with their medications ( $8.6 \pm 1.9$ ), carrying out plans to solve or prevent problems with patients' medications ( $8.2 \pm 2.1$ ) and asking patients questions to figure out if their goals for the medications are being reached ( $8.1 \pm 2.3$ ) were also seen as very beneficial. Designing and carrying out follow up plans to measure patients' progress toward their goals for their medications was seen as the least beneficial service which could be offered to patients ( $7.7 \pm 2.4$ ).

Results from pharmacists' report of their pharmaceutical care activities indicated that pharmacists provided a wide range of services. Summed scores for the level of services provided ranged from 0 to 90, covering the entire range of potential scores. The mean score was 40.0 (s.d.=22.9). Table 5-9 (page 110-111) displays the means and standard deviations for each service. Compared to Badejogbin's (1994) study, it seems that pharmacists are providing pharmaceutical care services to more patients. The overall mean score was reported by Badejogbin (1994) to be 32.9 (s.d.=23.2). The mean score for the documentation domain (range 0 to 30) was 13.8 (s.d.=12.2), slightly higher than Badejogbin's finding (1994) of 10.6 (s.d.=7.2). Therapeutic objective implementation and patient assessment were provided to fewer patients. The mean for the domain of

patient assessment (range 0 to 30) services was 9.2 (s.d.=10.0). Pharmacists reported providing therapeutic objective implementation (range 0 to 15) for 5.7 (s.d.=6.0) patients. Badejogbin's findings (1994) showed pharmacists' mean scores in these domains to be 6.9 (s.d.=7.0) and 4.6 (s.d.=4.2), respectively. Pharmacists reported providing screening of patients' record often, providing it to an average of 3.9 (s.d.=1.8) patients of the last five. Verification of patient understanding and patient consultation were also provided to more than half of patients. Pharmacists reported consulting with an average of 3.0 (s.d.=1.9) patients of the last five, and reported verifying the understanding of an average of 3.2 (s.d.=1.9) patients which is consistent with the level reported by Badejogbin (1994). These means are comparable with earlier findings, which reported means of 4.4 (s.d.=1.4), 3.1 (s.d.=1.7) and 3.3 (s.d.=1.8) respectively. It seems that pharmacists report providing more pharmaceutical care services than in 1994. However, the types of services being reported seem to be consistent with those reported by the pharmacists surveyed in 1994 (Badejogbin).

#### Association Between IPM and PCQ

Each of the items on the IPM-PC had a corresponding item on the PCQ. Associations between pharmacists' perceptions of the benefits of the services and the number of patients for whom they provided that service was calculated to examine the extent to which pharmacists engaged in behaviors they believed would be beneficial for patients. Table 5-10 (page 112) shows the correlations between these items. Of the seven items, three were found to be significantly correlated with their corresponding behavior measure. A significant positive correlation was found between the items "it would be

beneficial for my patients if I were to make sure that they understand the information given to them" and the number of patients for whom pharmacists reported that they verified that the patient understands the information presented to him or her ( $r=0.41$ ,  $p<0.001$ ). The item "it would be beneficial for my patients if I were to carry out plans to solve (or prevent) problems with their medications," was found to be positively associated with the number of patients for whom pharmacists reported that they implemented a strategy to resolve (or prevent) the drug related problem ( $r=0.24$ ,  $p<0.01$ ). Finally, a significant positive correlation was found between the item "it would be beneficial for my patients if I were to tell them about other drugs which may cause problems with their medications," and the number of patients for whom pharmacists reported that they discussed the patient's drug therapy with him or her ( $r = 0.27$ ,  $p<0.001$ ). Although none of the correlations was large, they were in the direction expected, in that pharmacists who rated the item as more beneficial for patients did in fact report that they provided the service to more patients. The remaining four items were not found to be significantly associated with pharmacists' reported behavior.

The three measures of behavior found to be associated with the corresponding PCQ item were also found to be associated with other IPM-PC items (see Table 5-10). The item "discuss the patient's drug therapy with him or her" was found to be significantly correlated with five of the items (items C ( $r=0.22$ ,  $p<0.01$ ), D ( $r=0.33$ ,  $p<0.001$ ) E ( $r=0.22$ ,  $p<0.01$ ), F ( $r=0.21$ ,  $p<0.01$ ), G ( $r=0.27$ ,  $p<0.001$ )) representing the domains of assessment, verification of understanding and one of two items representing consultation and implementation of therapeutic plans. The item "verify that the patient

understands the information presented to him or her" was found to be associated with its PCQ counterpart ( $r=.41$ ,  $p<0.001$ ) and also the item "tell me about other drugs which may cause problems with my medication(s)" ( $r=0.21$ ,  $p<0.01$ ) from the domain of consultation. Finally, the item "implementing a strategy to resolve (or prevent) the drug related problems" was found to be correlated with the items representing the domain of consultation (items A ( $r=0.25$ ,  $p<0.01$ ) and G ( $r=0.27$ ,  $p<0.01$ )), the one item representing verification of understanding (item D,  $r=0.25$ ,  $p<0.01$ ) in addition to its corresponding PCQ item. The summated score of pharmacists' direct perspective scores were found to be positively associated with overall score on the PCQ ( $r=0.22$ ,  $p<0.01$ ).

Correlations between pharmacists' metaperspective scores for individual items on the IPM-PC and reported behavior on the PCQ were calculated. As can be seen in Table 5-10, none of these correlation was found to be significant. Additionally, correlations between pharmacists' meta-metaperspective scores and reported behavior were calculated (Table 5-10, p.112). The item in which pharmacists responded to the extent that their patients would say "my pharmacist would say 'I think it would be beneficial for my patients if I were to make sure that they understand the information given to them'" was found to be correlated with the number of patients for whom pharmacists reported performing this service ( $r=0.24$ ,  $p<0.01$ ).

### Summary of Difference Scores

Difference scores for each pharmacist were calculated to determine the pharmacists' agreement with patients, pharmacists' understanding of patients, pharmacists' realization that patients misunderstand them and pharmacists' feeling understood. The

mean difference score for pharmacists' agreement with patients was 5.2 (s.d.=8.9). Approximately 20 percent (N=30) of pharmacists had negative difference scores, while 80 percent had positive difference scores (N=117). This suggests that most pharmacists perceived the pharmaceutical care services to be more beneficial than patients did. The difference scores for pharmacists' understanding of patients showed that 30 percent (N=44) of pharmacists thought patients would perceive the services as less beneficial than they did. On the other hand, 70 percent (N=103) believed that patients rated the services as more beneficial than they actually did. The mean understanding difference score was 3.0 (s.d.=10.7). The results of pharmacists' realization that patients misunderstand them were similar to those of pharmacists' understanding. Negative difference scores, which indicated that pharmacists' meta-metaperspective scores were lower than patients' metaperspective scores were found for 29 percent of pharmacists (N=43). Positive scores were found for the remaining 71 percent (N=104), which indicated that most pharmacists believed patients rated pharmacists' perceptions higher than patients did. Overall, the mean difference score for pharmacists' realization was 3.2 (s.d.=10.2). Finally, the mean difference score for pharmacists' feeling understood was -1.0 (s.d.=9.1). Negative scores accounted for 42 percent (N=62) of the scores and 58 percent (N=85) were positive. Thus, more than half of pharmacists thought patients would rate pharmacists' perceptions higher than pharmacists' actual perceptions.

Patients' direct perspective responses on the potential benefits to them of pharmaceutical care services were consistently lower than pharmacists'. Means ranged from 6.1 (s.d.=2.4) to 9.4 (s.d.=1.6). Patients believed that being told about other drugs

which may cause problems with their medications was the most important service which could be provided by the pharmacist ( $9.4 \pm 1.6$ ). Making sure that the patient understands the information provided ( $9.0 \pm 2.2$ ), and having an explanation about how to use the medications ( $8.7 \pm 2.1$ ) were also seen as quite beneficial. Being asked questions for the pharmacist to identify any problems with the medications ( $7.7 \pm 1.9$ ), having the pharmacist carry out plans to solve (or prevent) problems with the medications ( $7.6 \pm 2.8$ ), having the pharmacist ask questions to determine if the goals for the medications are being reached ( $6.7 \pm 3.1$ ) and having the pharmacist design and carry out follow up plans to measure progress toward the goals for the medications ( $6.1 \pm 2.4$ ) were perceived to be less beneficial by patients.

Tests of association between patients' perceptions of pharmaceutical care type services and their experience with pharmacists revealed no relationship. No relationship was found between patients knowing the name of their pharmacist, having a pharmacist volunteer information or having a pharmacist ask if they were having problems with their medications and their perceived benefits of pharmaceutical care type services (direct perspective scores). Specific comparisons between pharmacists' and patients' perceptions were made by testing the hypotheses and are described below.

### Testing the Hypotheses

The variables used in the testing of the hypotheses are described in Tables 5-8 (page 109), 5-11 (page 113), 5-12 (page 114) and 5-13 (page 115). Table 5-8 lists the mean and standard deviation for each of the items as well as the overall scale scores.

Table 5-11 and 5-12 summarizes the T-tests for pharmacists and patients respectively.

Finally, Table 5-13 summarizes the results of the comparisons made via the Interpersonal Perception Method for each item and the overall scale scores.

$H_1$  : Pharmacists and patients agree on the types of pharmaceutical care type services they perceive would be beneficial for patients.

It was hypothesized that pharmacists and patients would agree upon the types of pharmaceutical care services they perceive would be beneficial if offered to patients. The responses to the six direct perspective statements were summed to yield an overall score for pharmacists and patients. A statistically significant difference was found, with a power of 0.99, between the mean direct perspective scores for pharmacists ( $51.2 \pm 8.9$ ) and patients ( $46.0 \pm 11.5$ ) ( $p < 0.001$ ). This indicates that, statistically, they disagreed on the types of pharmaceutical care services they perceived would be beneficial. A separate analysis of item G was conducted because it was eliminated from the scale. It revealed no significant difference between pharmacists' and patients' mean direct perspective scores.

In comparing pharmacists' and patients' responses to each item, statistically significant differences were found for all items ( $p < 0.05$ ) with the exception of one. No significant difference was found for the item "make sure that patients understand the information given to them." Pharmacists rated most of the items higher than patients, which suggests that pharmacists' perceive the services to be potentially more beneficial than do patients.

$H_{2a}$ : Pharmacists misunderstand patients' perceptions of the benefits of pharmaceutical care type services.

It was hypothesized that pharmacists misunderstand patients' perceptions of the benefits of pharmaceutical care type services. This implied that a significant difference would be found between the mean score of pharmacists' meta-perspective and patients' direct perspective. A significant difference was found ( $p < 0.05$ ) between the means ( $49.0 \pm 10.7$  and  $46.0 \pm 11.5$ , respectively), with a power of 0.92, thereby supporting the hypothesis. According to the Interpersonal Perception Method, this suggests that pharmacists misunderstand patients' perceptions. Statistically speaking, the null hypothesis was rejected. Pharmacists rated the items higher than patients indicating that they thought patients would think the services to be more beneficial than patients actually did.

When analyzed by item, significant differences were found for three items; "design and carry out follow up plans to measure progress toward goals for medications" ( $p < 0.001$ , power=0.96), "ask questions to find out if patients might be having problems with their medications" ( $p < 0.05$ , power=0.70), "ask patients questions to figure out if their goals for the medications are being reached" ( $p < 0.05$ , power=0.57). According to the IPM, pharmacists did not understand patients' perceptions of these services. Pharmacists' metaperspective scores were higher than patients' direct perspectives for the first two, indicating that the pharmacists' thought patients would think those services to be more beneficial than they actually believed them to be (see Table 5-8). Patients

perceived item G ("tell patients about other drugs which may cause problems with their medications") to be more beneficial than pharmacists recognized ( $p < 0.05$ ).

$H_{2b}$ : Patients misunderstand pharmacists' perceptions of the benefits of pharmaceutical care type services.

It was hypothesized that patients misunderstand pharmacists' perceptions.

Operationally, this means that a difference was predicted between the mean of patients' metaperspective responses ( $47.0 \pm 13.0$ ) and the mean of pharmacists' direct perspective responses ( $51.2 \pm 8.9$ ). This hypothesis was supported. The overall means for these perspectives were found to be statistically significantly different ( $p < 0.01$ ) with a power of 0.67. In general, pharmacists rated items higher than patients thought they would. Items that were found to have significant differences included "explain to patients how to use their medications" ( $p < 0.01$ , power=0.79), "design and carry out follow up plans to measure patients' progress toward their goals for their medications" ( $p < 0.001$ , power=0.95), "ask patients questions to figure out if their goals for the medications are being reached" ( $p < 0.001$ , power=0.94), and "carry out plans to solve (or prevent) problems with their medications" ( $p < 0.05$ , power=0.51). Results of these comparisons indicated that, overall, patients do not understand pharmacists' perceptions of the pharmaceutical care type services in question. Patients consistently underestimated the extent to which pharmacists perceive these patient care services as beneficial to patients. Analysis of item G ("Provide information about other drugs which may cause problems with medications") revealed no significant difference between the means.

H<sub>3a</sub>: Pharmacists fail to realize that patients misunderstand their perceptions of the benefits of pharmaceutical care type services.

It was hypothesized that pharmacists would fail to realize that patients misunderstood their perceptions. In order to test this hypothesis, a comparison was made between the mean of pharmacists' meta-metaperspective scores ( $50.2 \pm 10.2$ ) and the mean of patients' metaperspective scores ( $47.0 \pm 13.0$ ) was made. A significant difference was detected between the mean scores ( $p < 0.05$ ) with a power of 0.69; thus, the null hypothesis was rejected. This hypothesis tested pharmacists' realization of either patients' understanding or patients' misunderstanding based on the results of the previous hypothesis. For example, if patients were found to understand pharmacists' perceptions of a particular item, this analysis would determine if pharmacists realized or failed to realize that the understanding had occurred. Analyses of individual items showed that pharmacists failed to realize that patients misunderstood pharmacists' perceptions of the item "ask patients questions to figure out if their goals for the medications are being reached", which patients rated as more beneficial than pharmacists thought they would ( $p < 0.001$ , power=0.94). Pharmacists also failed to realize that patients understood pharmacists' perceptions of the items "design and carry out follow-up plans to measure patients' progress toward their goals for their medications" ( $p = 0.001$ , power=0.87), and "carry out plans to solve (or prevent) problems with their medications" ( $p < 0.05$ , power=0.64). Analysis of item G ("tell patients about other drugs which may cause problems with their medications") revealed no significant difference between pharmacists' and patients' perceptions.

H<sub>3b</sub>: Patients fail to realize that pharmacists misunderstand their perceptions of the benefits of pharmaceutical care type services.

It was hypothesized that patients failed to realize that pharmacists misunderstand patients' perceptions. While the comparison between patients' mean meta-metaperspective score ( $46.2 \pm 14.3$ ) and pharmacists' mean metaperspective score ( $49.0 \pm 10.7$ ) approached significance ( $p=0.053$ ), the null hypothesis was not rejected. According to the IPM, this would indicate that patients realize that pharmacists misunderstood patients' overall perceptions. Similar to the analysis described above, this analysis determined if patients realized or failed to realize that understanding or misunderstanding had taken place. In the analysis of each item, patients failed to realize pharmacists' misunderstanding of their perceptions of one item ("ask patients questions to figure out if the goals for the medications are being reached";  $p<0.05$ , power=0.56). Patients were found to realize pharmacists' understanding and misunderstanding on all remaining items. Thus, the hypothesis was not generally supported. Separate analysis of item G ("tell patients about other drugs which may cause problems with their medications") revealed no significant difference between the means.

H<sub>4a</sub>: Pharmacists feel misunderstood by patients with regard to pharmaceutical care type services.

It was hypothesized that pharmacists would feel misunderstood by patients. In comparing pharmacists' meta-metaperspective scores to their own direct perspective scores, it was determined that this hypothesis was not supported. The overall difference between pharmacists' mean meta-metaperspective ( $50.2 \pm 10.2$ ) and their mean direct

perspective ( $51.2 \pm 8.9$ ) was not significant ( $p=0.18$ ). According to the IPM, this would suggest that pharmacists feel understood by patients with regard to pharmaceutical care type services. Pharmacists ranked one item higher than they thought patients would say they did. Specifically, the item "ask patients questions to figure out if their goals for the medications are being reached" was found to have a significant difference ( $p < 0.05$ ). A separate analysis was conducted for item G, eliminated from the scale ("tell patients about other drugs which may cause problems with their medications"), and no significant difference was found.

$H_{4b}$ : Patients feel misunderstood by pharmacists with regard to pharmaceutical care type services.

It was hypothesized that patients would feel misunderstood by pharmacists with regard to pharmaceutical care type services. A statistically significant difference between patients' mean meta-metaperspectives score ( $46.2 \pm 14.3$ ) and patients' mean direct perspective score ( $46.0 \pm 11.5$ ) would confirm this hypothesis. The overall scores were not statistically significant ( $p=.83$ ). Thus, the null hypothesis was not rejected and the research hypothesis was not supported. According to the IPM, this would indicate that patients feel understood by pharmacists. Analysis of each item revealed that the means for the items "design and carry out follow up plans to measure patients' progress toward their goals for their medications" and "tell patients about other drugs which may cause problems with their medications" were found to be statistically significant ( $p < 0.001$ ). This indicated that patients feel misunderstood with respect to these particular items. The item "design and carry out follow up plans to measure patients' progress toward their

goals for their medications" was ranked lower by patients than they believed pharmacist would say they did. On the other hand, analysis of item G ("tell patients about other drugs which may cause problems with their medications"), showed that patients ranked this item higher than they believed pharmacists would say they did ( $p < 0.05$ ).

H<sub>5</sub>: The level of pharmaceutical care type services reported by pharmacists will be predicted by the level of pharmacists' agreement, level of pharmacists' understanding, level of pharmacists' realizations and level of pharmacists' feeling understood.

The final hypothesis proposed that the level of pharmaceutical care type services reported by pharmacists would be predicted by pharmacists' agreement with patients, pharmacists' understanding of patients, pharmacists' realization of understanding and pharmacists' feeling understood. The overall model was found to be significant ( $p = 0.01$ ) with an R-square value of 0.074 and a standard error of 22.3. The regression coefficients for pharmacists' agreement with patients ( $B = 0.49$ ,  $p < 0.05$ ) and pharmacists' understanding of patients ( $B = -0.25$ ,  $p < 0.01$ ) were found to be significant. Pharmacists' feeling understood was not significant ( $B = 0.09$ ,  $p = 0.39$ ), and pharmacists' realization of understanding did not reach the minimum tolerance for the equation. Thus, there seems to be a negative relationship between pharmacists' understanding of patients and pharmacists' reported behavior. Also, there seems to be a positive relationship between pharmacists' agreement with patients and pharmacists' reported behavior. See Tables 5-14 and 5-15 (page 116) for the regression coefficients and analysis of variance tables respectively.

The regression was also analyzed using the variable PC-2 (the measure of reported behaviors measured on the Interpersonal Perception Method-Pharmaceutical Care scale) as the dependent variable. As would be expected, there is an increase in the amount of the variance explained by the independent variables. The R-square for the equation is 0.10. The overall equation is significant ( $p < 0.01$ ) and the same variables were found to be significant predictors of pharmacists' report of behavior. Both pharmacists' agreement with patients ( $B = 0.47$ ,  $p < 0.001$ ) and pharmacists' understanding of patients ( $B = -0.32$ ,  $p < 0.01$ ) were found to be significant and pharmacists' realization of understanding was not included in the model because it did not meet the minimum tolerance. See Tables 5-16 and 5-17 (page 116) for the variables in the regression equation and the analysis of variance tables respectively.

Table 5-1. Characteristics of Pharmacists (N=147)

	Frequency	Percent	National <sup>1</sup>
Gender			
Male	95	64.6	64.6
Female	51	34.7	29.1
Missing	1	0.7	6.3
Age			
Under 30 years	12	8.2	7.1
30-39 years	43	29.3	28.5
40-49 years	41	27.9	24.5
50-59 years	28	19.0	14.5
60 years +	23	15.2	17.1
Years in practice			
1-5 years	29	19.7	
6-10 years	26	17.7	
11-15 years	17	11.6	
16-20 years	21	14.3	
Over 20 years	54	36.7	
Position			
Employee pharmacist	77	52.4	> 65.0 <sup>2</sup>
Pharmacy manager	57	38.8	
Pharmacy owner	8	5.4	
Other	5	3.4	
Degree held			
Bachelor of Science	122	83.0	86.2
Doctor of Pharmacy	8	5.4	4.1
Both B.S. and Pharm.D.	17	11.6	1.7
Missing/Unspecified			8.0
Practice Setting			
Independent	46	31.3	33.1
Drug chain (e.g. Eckerd's)	55	37.4	32.8 <sup>3</sup>
Discount chain (e.g. WalMart)	45	30.6	--
HMO	1	0.7	1.7
Average number of prescriptions dispensed per day			
Under 100	25	17.0	
100 - 199	39	26.5	
200 - 299	29	13.6	
300 - 399	22	15.0	
400 - 499	11	7.5	
Over 500	10	6.8	

<sup>1</sup> Source Martin, S. 1993. "Pharmacists more than 190,000 in United States," *American Pharmacy*. 33(7): 22-23.

<sup>2</sup> Other percentages were not provided in the article.

<sup>3</sup> All practice types were included in the survey and all chain stores were grouped together.

Table 5-2. Characteristics of Patients (N = 151)

	Sample Frequency	Sample Percent	Census Percent <sup>1</sup>
Gender			
Male	44	29.1	47.6
Female	101	66.9	52.4
Missing	6	4.0	
Age			
18-29 years	35	23.2	22.7
30-39 years	33	21.9	20.0
40-49 years	32	21.2	15.3
50-59 years	15	9.9	11.7
60 +	36	23.8	30.2
Education			
Less than high school degree	14	9.2	25.0
High school degree	28	18.5	29.4
Some college	51	33.8	26.4
College degree	37	24.5	10.4
Beyond college degree/ professional degree	18	11.9	8.8
Missing	3	2.0	
Income <sup>2</sup>			
Under \$19,999	26	17.2	
\$20,000-\$39,999	37	24.5	
\$40,000-\$59,999	30	19.9	
\$60,000-\$79,999	17	11.3	
Over \$80,000	13	8.6	
Refused	28	18.5	

<sup>1</sup> Source: U.S. Department of Commerce Bureau of the Census. 1990. Census of the Population. General Population Characteristics-Florida.

<sup>2</sup> Income categories utilized in study do not match those used by the census.

Table 5-3. Pharmacy Patronage

	Frequency	Percent
Type of pharmacy		
Large chain (such as Walgreen's)	71	47.0
Small chain (such as Eckerd's)	50	33.1
Independent store	13	8.6
Grocery store (such as Albertson's)	9	6.0
Other	8	5.3
Number of Pharmacies		
1	109	74.2
2	26	17.2
3	5	3.3
Missing	11	7.3
Do you know the name of the pharmacist who usually fills your prescriptions?		
Yes	27	17.9
No	123	81.5
Missing	1	0.7
Does your pharmacist usually volunteer information about your medicine when you get a new prescription filled?		
Yes	65	43.0
No	83	55.0
Missing	3	2.0
Does your pharmacist usually ask if you are having any problems when you get a refill?		
Yes	33	21.9
No	114	75.5
Missing	4	2.6

Table 5-4. Factor Loadings and Eigenvalues for Analysis of Pharmacists' IPM Scales

Item	Factor 1	Eigenvalue
Direct Perspective		
How to use medications	0.613	3.444
Design/carry out follow-up	0.711	0.959
Ask about problems	0.777	0.710
Understand information	0.589	0.686
Ask questions about goals	0.844	0.508
Carry out follow-up plans	0.809	0.401
Drug interactions	0.495	0.292
Metaperspective		
How to use medications	0.798	4.399
Design/carry out follow-up	0.723	0.837
Ask about problems	0.861	0.518
Understand information	0.818	0.431
Ask questions about goals	0.824	0.325
Carry out follow-up plans	0.812	0.286
Drug interactions	0.701	0.203
Meta-Metaperspective		
How to use medications	0.850	5.044
Design/carry out follow-up	0.814	0.776
Ask about problems	0.883	0.376
Understand information	0.850	0.262
Ask questions about goals	0.862	0.227
Carry out follow-up plans	0.888	0.169
Drug interactions	0.791	0.146

Table 5-5. Factor Loadings and Eigenvalues for Analysis of Patients' IPM Scales

Item	Factor 1	Factor 2	Eigenvalue
Direct Perspective			
How to use medications	0.649	-0.021	3.086
Design/carry out follow-up	0.827	-0.066	1.053
Ask about problems	0.601	0.433	0.830
Understand information	0.406	0.365	0.697
Ask questions about goals	0.814	0.243	0.571
Carry out follow-up plans	0.681	0.367	0.465
Drug interactions	-0.046	0.926	0.298
Metaperspective			
How to use medications	0.339	0.704	3.908
Design/carry out follow-up	0.891	0.103	1.207
Ask about problems	0.558	0.610	0.664
Understand information	0.297	0.812	0.370
Ask questions about goals	0.901	0.187	0.356
Carry out follow-up plans	0.798	0.337	0.301
Drug interactions	-0.017	0.819	0.195
Metaperspective			
How to use medications	0.777		4.592
Design/carry out follow-up	0.801		0.907
Ask about problems	0.870		0.475
Understand information	0.748		0.323
Ask questions about goals	0.856		0.291
Carry out follow-up plans	0.855		0.261
Drug interactions	0.749		0.152

Table 5-6. Pharmacist Scales Item to Total Correlations and Coefficient Alpha

	Item-Total Correlation	Alpha if item deleted	Adjusted Item-Total Correlation	Adjusted Alpha if item Deleted
Direct Perspective				
How to use medications	0.54	0.87	0.50	0.86
Design/carry out follow-up	0.55	0.88	0.55	0.86
Ask about problems	0.76	0.84	0.74	0.81
Understand information	0.58	0.86	0.57	0.85
Ask questions about goals	0.77	0.84	0.78	0.81
Carry out follow-up plans	0.81	0.83	0.81	0.80
Drug interactions	0.66	0.86	---	---
Overall reliability		0.87		0.86
Meta Perspective				
How to use medications	0.70	0.88	0.70	0.88
Design/carry out follow-up	0.64	0.89	0.67	0.88
Ask about problems	0.79	0.87	0.78	0.86
Understand information	0.72	0.88	0.69	0.88
Ask questions about goals	0.76	0.87	0.77	0.86
Carry out follow-up plans	0.74	0.88	0.72	0.87
Drug interactions	0.59	0.89	---	---
Overall reliability		0.90		0.89
Meta-Meta Perspective				
How to use medications	0.78	0.92	0.76	0.92
Design/carry out follow-up	0.76	0.93	0.78	0.92
Ask about problems	0.83	0.92	0.82	0.91
Understand information	0.78	0.92	0.75	0.92
Ask questions about goals	0.82	0.92	0.83	0.91
Carry out follow-up plans	0.85	0.92	0.85	0.91
Drug interactions	0.71	0.93	---	---
Overall reliability		0.93		0.93

Table 5-7. Patient Scales Item to Total Correlations and Coefficient Alpha

	Original Item-total Correlation	Original Alpha if item deleted	Adjusted item-total correlation	Adjusted alpha if item deleted
Direct Perspective				
How to use medications	0.44	0.77	0.45	0.79
Design/carry out follow-up	0.58	0.75	0.61	0.76
Ask about problems	0.58	0.75	0.56	0.77
Understand information	0.38	0.78	0.39	0.81
Ask questions about goals	0.73	0.71	0.73	0.72
Carry out follow-up plans	0.63	0.73	0.62	0.75
Drug interactions	0.22	0.80	---	---
Overall Coefficient Alpha		0.79		0.80
Meta Perspective				
How to use medications	0.59	0.85	0.57	0.87
Design/carry out follow-up	0.66	0.44	0.68	0.85
Ask about problems	0.72	0.83	0.71	0.84
Understand information	0.63	0.85	0.58	0.87
Ask questions about goals	0.74	0.83	0.76	0.83
Carry out follow-up plans	0.75	0.83	0.75	0.83
Drug interactions	0.39	0.87	---	---
Overall reliability		0.86		0.87
Meta-Meta Perspective				
How to use medications	0.69	0.90	0.67	0.90
Design/carry out follow-up	0.74	0.90	0.77	0.89
Ask about problems	0.81	0.89	0.80	0.88
Understand information	0.65	0.91	0.60	0.91
Ask questions about goals	0.81	0.89	0.82	0.88
Carry out follow-up plans	0.80	0.89	0.80	0.88
Drug interactions	0.65	0.91	---	---
Overall reliability		0.91		0.91

Table 5-8. Mean scores (standard deviation) for pharmacists and patients from each perspective.

	Direct	Meta	Meta-Meta
Pharmacists			
A. Explain to patients how to use their medications.	9.4 (1.3)	8.9 (1.8)	9.0 (1.6)
B. Design and carry out follow up plans to measure their progress toward their goals for their medications.	7.7 (2.4)	7.3 (2.5)	7.7 (2.3)
C. Ask patients questions to find out if they might be having problems with their medications.	8.6 (1.9)	8.3 (2.1)	8.4 (2.0)
D. Make sure that patients understand the information given to them.	9.2 (1.5)	8.9 (1.8)	8.9 (1.7)
E. Ask patients questions to figure out if their goals for the medications are being reached.	8.1 (2.3)	7.6 (2.5)	8.0 (2.1)
F. Carry out plans to solve (or prevent) problems with their medications.	8.2 (2.1)	8.0 (2.4)	8.1 (2.1)
G. Tell patients about other drugs which may cause problems with their medications.	9.1 (1.5)	8.8 (2.0)	8.9 (1.8)
Mean Scale Score (Items A-F)	51.2 (8.9)	49.0 (10.7)	50.2 (10.2)
Patients			
A. Explain to me how to use my medications.	8.7 (2.1)	8.8 (2.3)	8.7 (2.4)
B. Design and carry out follow-up plans to measure my progress toward my goal(s) for my medication(s).	6.1 (2.4)	6.5 (3.3)	6.7 (3.2)
C. Ask me questions to find out if I might be having any problems with my medication(s).	7.7 (1.9)	8.2 (2.7)	7.9 (3.1)
D. Make sure that I understand the information given to me.	9.0 (2.2)	8.8 (2.1)	8.6 (2.4)
E. Ask me questions to figure out if my goal(s) for the medication(s) are being reached.	6.7 (3.1)	7.0 (3.1)	6.9 (3.2)
F. Carry out plans to solve (or prevent) problems with my medication(s).	7.6 (2.8)	7.6 (3.0)	7.4 (3.0)
G. Tell me about other drugs which may cause problems with my medications.	9.4 (1.6)	9.4 (1.6)	8.9 (2.2)
Mean Scale Score (Items A-F)	46.0 (11.5)	47.0 (13.0)	46.2 (14.3)



Table 5-9 continued.

Pharmaceutical Care Domain	Mean (s.d.)
<u>Patient Consultation</u>	
4g. Discuss the patient's drug therapy with him or her.	3.0 (2.0)
<u>Patient Understanding Verification</u>	
4h. Verify that the patient understands the information I present to him or her.	3.2 (1.9)
Overall Mean	40.0 (22.9)

Table 5-10. Correlations between IPM-PC Scores and PCQ Items

IPM-PC	Discuss	Carry out	Document	Ask	Verify	Asked re: objective	Implement
<b>Direct Perspective</b>							
How to use medications	0.12	0.08	0.08	-0.15	0.13	0.11	*0.25
Design/carry out	0.10	0.05	0.03	0.06	-0.03	0.16	0.12
Ask about problems	*0.21	0.05	0.03	0.10	0.20	0.09	0.19
Understand information	**0.33	0.15	0.14	0.11	**0.41	0.17	*0.25
Ask questions about goals	*0.22	0.03	0.06	0.12	0.12	0.08	0.14
Carry out follow-up plans	*0.21	0.14	0.13	0.08	0.15	0.10	*0.24
Drug interactions	**0.27	0.09	0.09	-0.06	*0.21	0.09	*0.27
<b>Metaperspective</b>							
How to use medications	-0.01	-0.11	-0.04	-0.04	0.09	0.04	0.06
Design/carry out	-0.13	-0.01	0.04	-0.08	-0.16	0.01	0.08
Ask about problems	0.03	-0.09	-0.03	-0.03	0.02	0.01	0.04
Understand information	0.03	-0.05	-0.01	-0.09	0.09	-0.02	0.07
Ask questions about goals	-0.11	-0.01	0.03	-0.10	-0.10	0.08	0.13
Carry out follow-up plans	-0.06	0.02	0.07	0.07	-0.08	0.07	0.08
Drug interactions	0.05	-0.02	0.01	-0.02	0.07	0.01	0.10
<b>Meta-metaperspective</b>							
How to use medications	0.17	0.10	0.09	-0.02	0.18	0.11	0.17
Design/carry out	-0.03	0.08	0.08	-0.01	0.02	0.18	0.04
Ask about problems	0.11	-0.02	-0.02	0.08	0.13	0.10	0.03
Understand information	0.13	0.11	0.11	0.08	*0.24	0.12	0.07
Ask questions about goals	0.01	0.04	0.06	0.01	0.03	0.13	0.02
Carry out follow-up plans	-0.01	0.086	0.09	-0.03	0.02	0.12	-0.01
Drug interactions	0.13	0.09	0.09	0.03	0.08	0.06	0.14

\* p&lt;0.01 \*\*p&lt;0.001

Table 5-11. Means (standard deviation) used for T-test comparisons of pharmacists' perceptions

	Agreement <sup>1</sup>	Understanding <sup>2</sup>	Realization <sup>3</sup>	Feeling Understood <sup>4</sup>
A. Explain to patients how to use their medications.	9.4 (1.3)** 8.7 (2.1)	8.9 (1.8) 8.7 (2.1)	9.0 (1.6) 8.8 (2.3)	9.0(1.6)* 9.4(1.3)
B. Design and carry out follow up plans to measure their progress toward their goals for their medications.	7.7(2.4)** 6.1 (2.4)	7.3(2.5)** 6.1(2.4)	7.7(2.3)** 6.5(3.3)	7.7(2.3) 7.7(2.4)
C. Ask patients questions to find out if they might be having problems with their medications.	8.6(1.9)** 7.7(1.9)	8.3(2.1)* 7.7(1.9)	8.4(2.0) 8.2(2.7)	8.4(2.0) 8.6(1.9)
D. Make sure that patients understand the information given to them.	9.2(1.5) 9.0(2.2)	8.9(1.8) 9.0(2.2)	8.8(2.1) 8.9(1.7)	8.8(2.1) 9.2(1.5)
E. Ask patients questions to figure out if their goals for the medications are being reached.	8.1(2.3)** 6.7(3.1)	7.0(2.5)* 6.7(3.1)	8.0(2.1)** 7.0(3.1)	8.0(2.1) 8.1(2.3)
F. Carry out plans to solve (or prevent) problems with their medications.	8.2(2.1)* 7.6(2.8)	8.0(2.4) 7.6(2.8)	8.1(2.1)* 7.6(3.0)	8.1(2.1) 8.2(2.1)
G. Tell patients about other drugs which may cause problems with their medications.	9.1(1.5) 9.4(1.6)	8.8(2.0)* 9.4(1.6)	8.9(1.8) 8.9(2.2)	8.9(1.8) 9.1(1.5)
Mean Scale Score (Items A-F)	51.2(8.9)** 46.0(11.5)	49.0(10.7)* 46.0(11.5)	50.2(10.2)* 47.0(13.0)	50.2(10.2) 51.2(8.9)

\*p&lt;0.05

\*\*p&lt;0.01

<sup>1</sup> Agreement represents a comparison between pharmacists' direct perspective and patients' direct perspective.

<sup>2</sup> Understanding represents pharmacists' understanding of patients: a comparison between pharmacists' metaperspective and patients' direct perspective.

<sup>3</sup> Realization represents pharmacists' realization of patients' understanding: a comparison between pharmacists' meta-metaperspective and patients' metaperspective.

<sup>4</sup> Feeling understood represents pharmacists' feeling understood by patients: a comparison between pharmacists' meta-metaperspective and pharmacists' own direct perspective.

Table 5-12. Means (standard deviation) used for T-test comparisons of patients' perceptions

	Agreement <sup>1</sup>	Understanding <sup>2</sup>	Realization <sup>3</sup>	Feeling Understood <sup>4</sup>
A. Explain to me how to use my medications.	8.8(2.3)** 9.4(1.3)	8.7(2.4) 8.9(1.8)	8.7(2.4) 8.7(2.1)	
B. Design and carry out follow-up plans to measure my progress toward my goal(s) for my medication(s).	6.5(3.3)** 7.7(2.4)	6.7(3.2) 7.3(2.5)	6.7(3.2)* 6.1(2.4)	
C. Ask me questions to find out if I might be having any problems with my medication(s).	8.2(2.7) 8.6(1.9)	7.9(3.1) 8.3(2.1)	7.9(3.1) 7.7(1.9)	
D. Make sure that I understand the information given to me.	8.8(2.1) 9.2(1.5)	8.6(2.4) 8.9(1.8)	8.6(2.4) 9.0(2.2)	
E. Ask me questions to figure out if my goal(s) for the medication(s) are being reached.	7.0(3.1)** 8.1(2.3)	6.9(3.2)* 7.6(2.5)	6.9(3.2) 6.7(3.1)	
F. Carry out plans to solve (or prevent) problems with my medication(s).	7.6(3.0)* 8.2(2.1)	7.4(3.0) 8.0(2.4)	7.4(3.0) 7.6(2.8)	
G. Tell me about other drugs which may cause problems with my medications.	9.4(1.6) 9.1(1.5)	8.9(2.2) 8.8(2.0)	8.9(2.2)* 9.4(1.6)	
Mean Scale Score (Items A-F)	47.0(13.0)** 51.2(8.9)	46.2(14.3) 49.0(10.7)	46.2(14.3)* 46.0(11.5)	

\*p&lt;0.05

\*\*p&lt;0.01

<sup>1</sup> Agreement represents a comparison between pharmacists' direct perspective and patients' direct perspective. See Table 5-11 for these comparisons.

<sup>2</sup> Understanding represents patients' understanding of pharmacists: a comparison between patients' metaperspective and pharmacists' direct perspective.

<sup>3</sup> Realization represents patients' realization of pharmacists' understanding: a comparison between patients' meta-metaperspective and pharmacists' metaperspective.

<sup>4</sup> Feeling understood represents patients' feeling understood by pharmacists: a comparison between patients' meta-metaperspective and patients' own direct perspective.

Table 5-13. Interpersonal perception method comparisons.

	Agreement	Understanding (Pt/RPh)	Realization (Pt/RPh)	Feeling Understood (Pt/RPh)
Overall	D	M / M	R / F	U / U
A. Explain how to use medications.	D	M / U	R / R	U / M
B. Design and carry out follow-up plans to measure progress toward goal(s) for medication(s).	D	M / M	R / F	M / U
C. Ask questions to find out if there might be any problems with medication(s).	D	U / M	R / R	U / U
D. Make sure that the information given is understood.	A	U / U	R / R	U / U
E. Ask questions to figure out if goal(s) for the medication(s) are being reached.	D	M / M	F / F	U / U
F. Carry out plans to solve (or prevent) problems with medication(s).	D	M / U	R / F	U / U
G. Provide information about other drugs which may cause problems with medications.	A	U / M	R / R	M / U
	A = agreement D = disagreement	U = understanding M = misunderstanding	R = realize F = fail to realize	U = feel understood M = feel misunderstood

Table 5-14. Variables in the Regression Equation: Prediction of Pharmaceutical Care

	B	SE B	Beta	T	Sig T
Feeling Understood	0.2369	0.2722	0.0941	0.870	0.3857
Pharmacists' Understanding	-0.5436	0.2676	-0.2537	-2.032	0.0440
Pharmacists' Agreement	1.0202	0.3320	0.3983	3.073	0.0025
Constant	36.4965	2.1621		16.880	0.0000

Table 5-15. Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	3	5705.71	1901.90
Residual	143	70980.74	496.37

Table 5-16. Variables in the Regression Equation: Prediction of Pharmaceutical Care II

	B	SE B	Beta	T	Sig T
Feeling Understood	0.1579	0.1157	0.1458	1.364	0.1746
Pharmacists' Understanding	-0.2939	0.1138	-0.3190	-2.584	0.0108
Pharmacists' Agreement	0.5180	0.1412	0.4701	3.670	0.0003
Constant	13.9090	0.9193		15.131	0.0000

Table 5-17. Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	3	1357.44	452.48
Residual	143	12830.70	89.73

## CHAPTER 6

### DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

This chapter discusses the findings of the study in the context of the overall goals of characterizing the relationships between pharmacists' and patients' perceptions of pharmaceutical care type services. The study further investigated the extent to which those perceptions predicted the level of pharmaceutical care services in which pharmacists reported engaging. First, both pharmacists' and patients' interpersonal perception method comparisons are discussed. Second, the predictive ability of pharmacists' perceptions and the relationships between their perceptions and behavior are discussed. Next, the implications for pharmacists and patients are offered. Finally, limitations of the study and directions for future research are discussed.

#### Interpersonal Perception Method

This section reviews the comparisons made via the interpersonal perception method and discusses what these comparisons reveal about pharmacists' and patients' perceptions of pharmaceutical care type services.

#### Agreement

The comparisons based on the Interpersonal Perception Method suggest that overall pharmacists and patients disagree on how beneficial pharmacy services be for

patients if provided by pharmacists. Based on the available literature this was expected (Herrier and Boyce, 1994; Nelson et al., 1984; Schommer and Wiederholt, 1994a; Chewning and Schommer, 1996; Stover, 1996; Gagnon, 1994; Carroll and Gagnon, 1984). Results from previous research suggests that both pharmacists and patients perceived patient interaction with the pharmacist to be beneficial for patients (Stover, 1996; Miller and Ortmeir, 1995; Gagnon, 1994; Gagnon and Camp, 1990; Carroll and Gagnon, 1984; Nelson et al., 1984; Kirking, 1982); however, without prior education about pharmaceutical care services, patients may not recognize the benefits of them (Chewning and Schommer, 1996; Gagnon, 1978).

According to theory, it is logical to assume that if pharmacists thought the services would be beneficial, they would offer them to a greater extent. Based on this reasoning, patients may have rated the services are more beneficial than pharmacists. Although a difference which would have been deemed "meaningful" was not specified a priori, the high level of power associated with the T-test enabled the slight difference to be found to be significant. Further, pharmacists rated all but one of the items as more beneficial than did patients, thus revealing a consistent pattern of differences. It appears that patients do not perceive that the services would be as beneficial as do pharmacists. This may be explained by the fact that patients may be unaware of the benefits of the services that can be associated with pharmaceutical care such as designing and monitoring therapeutic plans or may not have understood exactly what was meant by the items referring to those kinds of services.

The two services that pharmacists and patients agreed upon were making sure the patient understands the information given (item D) and providing patients with information about other drugs that may cause problems with their medications (item G). These two items represent services that many pharmacists already provide, while the other services may be unfamiliar to patients. Because patients are likely to have had experience with these services, they may be more aware of their benefits than the other services which they may not have experienced. This is consistent with the notion that patients may not fully understand the significance of the pharmaceutical care type services. However, pharmacists and patients disagreed on the benefits of another service which pharmacist often provide, explaining to patients how to use their medications, which patients saw as less beneficial than did pharmacists.

### Understanding

Pharmacists were found to misunderstand patients' perceptions of the benefits of pharmaceutical care type services overall. Patients misunderstood pharmacists as well. Pharmacists and patients understood each other's perceptions on the item "make sure that patients understand the information which is given to them" (item D). Apparently, both groups recognize that the service is beneficial (they agreed on it as well) and both groups understood each other's perspective. All other items showed misunderstanding by pharmacists and patients. For example, both groups misunderstood each other's perceptions about the benefits of explaining to patients how to use their medications, follow-up plans measuring progress toward goals for the medication and telling patients about other drugs which may cause problems with their medications.

The overall misunderstanding by pharmacists and patients was expected from a theoretical perspective because disagreement is likely to be followed by misunderstanding. Laing further suggests that disagreement is more often unrecognized (1966). Problems in relationships do not always arise when there is disagreement, rather whether the parties understand each other and are able to relate accurately is crucial.

### Realization

Overall, pharmacists failed to realize that patients misunderstood them. This may be particularly troublesome for the pharmacist-patient relationship because it is most likely the realization of a misunderstanding which is crucial to improving communication between two people (Laing et al., 1966). If pharmacists fail to realize that patients misunderstand them, they are not likely to attempt to correct that misunderstanding nor to invite interaction with patients that would allow the patient to express, either explicitly or implicitly, their point-of-view. Pharmacists can either confirm or disconfirm patients' behavior. Confirmation serves to reinforce the identity and behavior whereas disconfirmation negates the person's definition of self. If two people are to successfully related, each one's assumed role must roughly correspond to the one imputed to him by the other (McCall and Simmons, 1966). If pharmacists disconfirm patients' behavior because they fail to recognize patients' misunderstanding of their perceptions, it may cause patients to reexamine their perceptions of appropriate pharmacist and patient behavior. In other words, patients' cues about the model for interaction come from pharmacists.

On the other hand, patients realized that pharmacists misunderstood their perceptions of pharmaceutical care type service. Perhaps this is due to patients' experience of pharmacists' behavior. For example, if a patient believed that a particular service was beneficial, and the pharmacist did not provide that service despite a request for it from the patient, the patient may rightly conclude that the pharmacist misunderstands his/her perceptions regarding that particular service. Because of the concerns regarding the responses from the meta-meta perspective and the probability that these questions were confusing to subjects, one must be cautious in interpreting results of the tests of realization and of feeling understood which will be described next.

#### Feeling Understood

Patients generally felt understood by pharmacists. However, as has been discussed, pharmacists misunderstood patients; thus, patients inaccurately felt understood. This appears to be inconsistent in that patients realized that pharmacists misunderstood them, yet they still felt understood. These results further support the notion that patients had difficulty conceptualizing the meta-metaperspective. It is also important to recall that the null hypothesis was not rejected in testing this hypothesis. This does not suggest that the null can be accepted; therefore, one must say that patients failed to feel misunderstood rather than saying that they felt understood. If patients feel understood by pharmacists, it is unlikely that they will express their opinions to them about pharmacy services which would perpetuate the misunderstanding. This is significant because it may lead to maintenance of the status quo in the relationship.

Likewise, pharmacists erroneously felt understood by patients. Yet, because they failed to realize that patients misunderstood pharmacists' perceptions, it is logical that pharmacists felt understood. Theoretically, this will also serve to maintain the relationship as it is. Pharmacists disagreed with patients, misunderstood patients, failed to realize that patients misunderstood them and yet feel understood by patients. The potential for a spiral based on disagreement and misunderstanding exists in this situation. If parties fail to realize there is misunderstanding, there may be more misunderstanding. The more misunderstanding there is in a relationship, the less likely the parties are to initiate discussion to clarify the misunderstanding. If there was disagreement to begin with in the relationship and no attempt to clarify the misunderstanding, both parties may feel frustrated and disappointed in the relationship. These spirals tend to have negative consequences for relationships (Laing et al., 1966). However, considering the limitations of the data obtained from the meta-metaperspective, the finding that pharmacists feel understood must be interpreted with caution.

### Perceptions and Pharmaceutical Care

Results of the multiple regression showed that both pharmacists' agreement with patients and pharmacists' understanding of patients were significant predictors of pharmacists' reported behavior. While significant, predictors did not account for a great deal of variance in the dependent variable, pharmacists' reported pharmaceutical care activities ( $R^2=0.074$ ). Pharmacists' realization of patients' understanding them was not a significant predictor, and pharmacists' feeling understood did not meet the minimum

tolerance to be included in the equation. This shows that, consistent with other research in this area (Knudson et al., 1980; Dymond, 1954; Laing et al., 1966; Drewery and Rae, 1969; Wichstrom and Holte, 1993), agreement and understanding are predictors of relational variables. It is thought that pharmacists' feeling understood was eliminated from the model because of the high correlation between it and the other variables. Because the variables are difference scores based on the same variables it is not unreasonable that this situation would arise. These results support the prediction from the literature and theory that understanding would be one of the most significant predictors of behavior (Laing et al., 1966; Laing, 1961). It is logical that, because pharmacists cite patient demand as a determinant in their provision of pharmacy services (Herrier and Boyce, 1994; Schommer and Wiederholt, 1994a; Raisch, 1993; Nelson et al., 1984), it would be found to be a significant predictor of their behavior. Pharmacists' understanding of patients, the other significant predictor, can also be explained from interpersonal perception theory because if pharmacists and patients agree on the types of services they believe would be beneficial, the behaviors that are consistent with those perceptions would be confirmed by both pharmacists and patients. When confirmed by patients, the pharmacists' behavior is reinforced and incorporated into the pharmacist's self-identity. The pharmacist thus develops an identity for interacting with patients. Pharmacists' identity can be different for each patient with whom they interact based on the behavior of that particular patient. This, too, is consistent with the literature which suggests that pharmacists vary the amount of information and interaction between

patients based on their perception of the patients' interest and need for information (Schommer, 1994; Schommer and Wiederholt, 1994a).

Interestingly, the relationship between pharmacists' understanding and pharmacists' behavior was found to be negative. In other words, the less pharmacists understood patients' perceptions, the more pharmacy services they reportedly provided. This relationship may be explained by the theory in that if pharmacists understood patients' perceptions, they would modify their behavior to correspond to patients' perceptions of their role. Because patients find the services less beneficial than pharmacists, if pharmacists understood their patients, they would provide fewer services. Therefore, because pharmacists misunderstood patients, they continued to provide higher levels of care. The significant relationship between pharmacists' agreement with patients and pharmacists' behavior was positive. In other words, the higher the level of pharmacists' agreement the more pharmaceutical services they reportedly provided. This finding suggests that agreement between pharmacists and patients is significant in determining that extent to which pharmacy services are provided.

The secondary regression analysis that attempted to predict those behaviors that were asked about on the IPM-PC questionnaire showed more predictive ability. Yet, once again, a small proportion of the variation was accounted for ( $R^2=0.10$ ). There was little difference between the multiple regression equations. Perhaps this is because those pharmacists who report higher levels of pharmaceutical care on the items covered by the IPM-PC also report higher levels of pharmaceutical care overall. This would be consistent with the idea discussed earlier that pharmacists have incorporated the ideas of

pharmaceutical care into their ideas about pharmacy practice. This may indicate a significant change over the past few years in pharmacists' perceptions about pharmaceutical care. The amount of variability in pharmacists' behavior that can be explained by the equation is not substantial. It is thought that the sample size was sufficiently large to detect small predictive power. Caution must be used in determining how meaningful pharmacists' agreement and pharmacists' understanding are as predictors of pharmacists' behavior.

Based on previous literature (Chewning and Schommer, 1996; Erstad et al., 1994; Berardo and Kimberlin, 1987; Gotsch and Liguori, 1982) it was thought that differences would be found between the type of pharmacy services patients received and their perceptions of the benefits of those services. No differences were found between the perceptions of patients who knew their pharmacist by name and those who did not, between patients whose pharmacists asked them if they were having any problems and those whose pharmacist did not, and no differences were found between those patients whose pharmacist volunteered information and those who reported that their pharmacist did not volunteer information. It appears that these relationship specifics were not associated with patients perceptions.

Analysis of the correlations between the IPM-PC questions and their corresponding measures of behavior revealed that the number of patients for whom pharmacists discussed their drug therapy was correlated with five of the seven items on the IPM-PC. This suggests that pharmacists may consider those items similar to discussing patients drug therapy. That particular PCQ item is vague; it was the sole item

representing the domain of patient consultation in the PCQ. However, the items found to correlate with it were from other domains including implementation of therapeutic plans, assessment and verification of understanding. Because factor analysis of pharmacists' responses to the IPM-PC failed to discern the factors thought to be covered by the PCQ, it is reasonable that the correlations between other domains were found. Few of the items measuring pharmacists' direct perspective of the benefits to patients of pharmaceutical care activities were found to be correlated with their corresponding behavioral item once again calling into questions the strength of the relationship between perceptions and behavior.

Factor analysis of pharmacists' and patients' direct, meta, and meta-metaperspective scores revealed that the services provided by pharmacists could be represented by either one or two factors rather than the four derived conceptually. For patients, it is likely that they saw all the services as representative of pharmacy services. It is possible, that the one item which was differentiated from the others was worded in a way to reflect the fact that pharmacists could provide the information in the form of a leaflet or patient package insert rather than being communicated orally.

Pharmacists may have adopted the ideas of the pharmaceutical care paradigm and accepted the role based on recognizing that all the services would be beneficial for patients, thus, revealing only one factor. While not directly assessed in this study, pharmacists may recognize the benefits of services but feel unable to provide them because of barriers in their practice setting.

### Implications

Improving pharmacist-patient communication may aid in the development of their relationship. If pharmacists helped establish clear expectations, patients may come to expect a higher level of service from their pharmacist. Recent research has shown that educating patients on the role of the pharmacist results in increased patient satisfaction (Chewning and Schommer, 1996). Interventions targeted to both pharmacists and patients designed to bring the misunderstanding between them into view may be helpful in improving the communication between them by improving the agreement and understanding between them. Wichstrom and Holte (1993) showed that dysfunctional communication is associated with lower levels of satisfaction among married couples. By improving communication between pharmacists, both patients and pharmacists may be more satisfied with their relationship. Further, improved communication between pharmacists and patients has been associated with improved patients' knowledge, improved compliance and positive health related outcomes for patients (Rantucci and Segal, 1986; Hammarlund et al., 1985; Kimberlin and Berardo, 1987).

Education of pharmacists and patients regarding the benefits of pharmaceutical care can yield a negotiated role that is beyond the standard dispensing role. A positive spiral can be initiated in which pharmacists' behavior improve patients' perceptions. Improved patient perceptions can, in turn, improve pharmacists' perceptions. Also, improving the agreement and understanding between them can make the transition to the new pharmaceutical care paradigm easier. Agreement and understanding have been found to be associated with more positive relationships between married partners.

Additionally, this study showed agreement and understanding to be significant predictors of pharmacists' behavior. This is supported by literature and also by the results of this study which show that both agreement and understanding are significant predictors of behavior.

Other methods for aiding pharmacists' implementation of the new paradigm must accompany any intervention targeted toward their communication with patients. The barriers that pharmacists cite, such as lack of time, lack of reimbursement are significant and must be addressed in order for pharmacists to make this transition. This study has shown ways to work on just one of the barriers cited by pharmacists--patient demand. As has been shown, patients may be more satisfied if they are exposed to higher levels of pharmacy services (Chewning and Schommer, 1996; Erstad et al., 1994; Kimberlin and Berardo, 1987). Their satisfaction should confirm pharmacists' behavior and yield even more pharmacist involvement.

The fact that comparisons between groups seems to have been modestly successful suggests that this approach may find use in groups and in the area of health care professional-patient relationships outside the arena of psychology. A clear definition of pharmacist and patient roles may be understood by understanding the relationships between the perceptions they have about the benefits of pharmacy service. Pharmacists and patients disagreement and misunderstanding illustrates the differences in their perceptions about the role of the pharmacist. Pharmacists seem to have a view of pharmacy in which the services they could provide are extremely beneficial. Patients, on the other hand, do not view them as beneficial.

Results of this study provide information regarding the congruency between pharmacists' and patients' perceptions by providing a direct comparison between their perceptions on the same measure. Previous comparisons have been made based on discrete studies of pharmacists and patients. This study allowed direct comparisons to be made for an overall scale of pharmaceutical care activities as well as for individual behaviors. Further, by incorporating the pharmacists' meta-metaperspective, this study provided evidence regarding pharmacists' realization of patients' understanding or misunderstanding of them. Similarly, by incorporating patients' meta-metaperspective, evidence regarding patients realization of pharmacists' understanding or misunderstanding will be gleaned. Finally, data gathered in this study can be used to ascertain if pharmacists and patients feel understood by one another with regard to pharmacy services which has not previously been addressed by researchers.

### Study Limitations

There are limitations associated with the use of the IPM. One criticism raised by Drewery (1969) is that the meta-metaperspective is difficult for respondents to conceptualize, thus limiting its use. In this study, the meta-metaperspective questions may have been difficult for respondents to understand. Means for most items are similar for both patients and pharmacist. It is thought that respondents were unable to make the transition to the third perspective and continued to answer the questions from their metaperspective, but, comments from the interviewers suggested that respondents

were not overly confused by the questionnaire. Interpretation of the results using the meta-metaperspective must be made cautiously.

Sampling pharmacists from the most recent register available from the state board also proved to be a limitation of this study. Because records kept by the State Board of Pharmacy did not include practice setting or home telephone number, many pharmacists were unable to be reached. More than half of the pharmacists randomly selected from the database were located in the city directories, yet a large percentage of them were retired or not practicing in the community setting. This implies potential problems with external validity of the study because of limitations in the sampling frame used. However, in comparison with national estimates (Martin, 1993), the sample of pharmacists in the study seems to be representative of practicing pharmacists.

Similarly, a potential problem exists with the external validity of the patient sample. A significant percentage of telephone numbers obtained in the random list were non-household numbers. Further, although the sample was representative of Florida's population with respect to age, this patient sample seemed to reflect a higher level of education and income than the general population of Florida.

Another limitation is the fact that the dependent variable of pharmacists' level of pharmaceutical care was collected by self-report. The potential bias of self-report arises because respondents may under-report or over-report the extent to which they engage in the behavior. Attempts to minimize this phenomenon included an explanation of the purpose of the study and by ensuring that all responses would be kept

confidential. Pharmacists were also asked to specifically think about their last five patients, which should have made the memory cues more salient.

Finally, a limitation of this study is the application of this dyadic method to groups of pharmacists and patients. Because this was an exploratory study utilizing the interpersonal perception method in a new arena, in groups rather than dyads, the interpretation of the results must be done with caution. The method of group comparisons used in this study allows the generation of a large amount of data relatively easily. Results from this study will be used to direct future work comparing the perceptions of pharmacist-patient pairs. Because pharmacists and patients are not matched, this study will only be able to characterize pharmacists' and patients' perceptions and the relationships between them in general. One can be reasonably sure in making conclusions regarding the groups' perceptions of the other group. However, caution must be taken to avoid applying these results to a particular dyad.

Despite these limitations, the findings reported in this study can be of use in illuminating differences between pharmacists' and patients' perceptions of the benefits of pharmaceutical care type services and the extent to which those perceptions may help predict pharmacists' level of provision of services.

#### Future Study

Future study should attempt to address the limitations of the meta-metaperspective questions, either through additional explanation or phrasing them as

direct questions of feeling understood. Alternatively, the meta-metaperspective items can be included along with direct questions of feeling understood in order to make comparisons between the responses.

It would also be interesting to investigate the effect of an intervention designed to educate patients about the pharmacists' role on their perceptions of the benefits of the services. If it is true that patients do not understand the benefits of the services, educating them about the benefits may improve their perceptions of the benefits. An intervention may be designed to directly affect patient knowledge, for example, via a leaflet explaining pharmacy services. Other interventions may include increasing the amount of interaction between pharmacists and patients to influence patients' perceptions through the theoretical relationship between the pharmacists' behavior and the patients' experience of the pharmacist. A parallel intervention to alter patients' behavior may effect change in pharmacists' attitudes. It would also be useful to observe patients' behavior to determine whether or not patients attempt to correct the misunderstandings between them.

Evaluating comparisons between one pharmacist's and his/her patient's perceptions may provide more information about the pharmacist-patient relationship. Comparisons between dyads where pharmacists already providing high levels of pharmaceutical care and those providing lower levels of pharmaceutical care would allow an investigator to compare the gaps specific to those pharmacist-patient dyads. Moreover, matching pharmacists with patients for data collection and analysis may yield a much better representation of any gaps in their perceptions. This type of study would

place an enormous response burden on the pharmacist and would demand extensive resources to gather sufficient data to generate meaningful results.

As detailed, this study shows that pharmacists and patients disagree on the types of pharmaceutical care services they perceive would be beneficial if provided by pharmacists. Further, pharmacists misunderstand patients' perceptions of those services. Patients, too, misunderstand pharmacists' perceptions of the services. At the same time, pharmacists fail to realize that patients misunderstand their perceptions. Patients, on the other hand, realize that pharmacists misunderstand their perceptions of the benefits of pharmaceutical care type services. Despite the misunderstandings between them, both pharmacists and patients feel understood by one another with respect to pharmacy services. Finally, a small percentage in the variation of pharmacists' behavior in the provision of pharmaceutical care type services can be explained by pharmacists' level of agreement with patients and level of understanding of patients. Future research can build upon these findings to provide further insight into the pharmacist-patient relationship.

## APPENDIX A QUESTIONNAIRES

### Pharmacist Survey

The following sections ask you to answer questions from different points of view. First, you will be asked to complete the questions from your own point of view. Then you will be asked to complete the questions from your patients' point of view.

1. I think it would be beneficial for my patients if I were to: (repeat as necessary)

	strongly agree					strongly disagree	
a. Explain to them how to use their medications.	1	2	3	4	5	6	7
b. Tell them about other drugs which may cause problems with their medications.	1	2	3	4	5	6	7
c. Tell them about possible side effects of their medications.	1	2	3	4	5	6	7
d. Ask them if they have any questions regarding their medications.	1	2	3	4	5	6	7
e. Ask them questions to find out if they might be having any problems with their medications.	1	2	3	4	5	6	7
f. Ask them questions to find out if they might be having any problems with their medications.	1	2	3	4	5	6	7
g. Check their records for potential problems with their medications.	1	2	3	4	5	6	7
h. Carry out plans to solve problems with their medications.	1	2	3	4	5	6	7
I. Ask them what they hope to achieve by taking their medications.	1	2	3	4	5	6	7
j. Ask them questions to figure out if their goals for the medications are being reached.	1	2	3	4	5	6	7

k. Design follow-up plans to measure their progress toward their goals for their medications.	1	2	3	4	5	6	7
l. Carry out follow-up plans to measure their progress toward goals for their medications.	1	2	3	4	5	6	7
m. Answer any questions or concerns they may have.	1	2	3	4	5	6	7
n. Make sure that they understand the information given to them.	1	2	3	4	5	6	7

### Patient's Point of View

Now imagine what your patients might think and answer the following questions from the patient's point of view. Try to answer as you think a typical patient who comes into your pharmacy would answer. Using the same scale, to what extent do you think that your patients agree with each statement? Remember, answer these as you think your patients would.

2. (Patient) I think it would be beneficial if my pharmacists were to: (Read as necessary)

	strongly agree						strongly disagree
a. Explain to me how to use my medication(s).	1	2	3	4	5	6	7
b. Tell me about other drugs which may cause problems with my medication(s).	1	2	3	4	5	6	7
c. Tell me about possible side effects of my medication(s).	1	2	3	4	5	6	7
d. Ask if I have any questions about my medication(s).	1	2	3	4	5	6	7
e. Ask me questions to find out how well I think the medication(s) I am taking is (are) working.	1	2	3	4	5	6	7
f. Ask me questions to find out if I might be having any problems with my medication(s).	1	2	3	4	5	6	7
g. Check my records for potential problems with my medication(s).	1	2	3	4	5	6	7
h. Carry out plans to solve problems with my medication(s).	1	2	3	4	5	6	7

i. Ask my what I want to achieve by taking my medication(s).	1	2	3	4	5	6	7
j. Ask me questions to figure out if my goal(s) for the medication(s) are being reached.	1	2	3	4	5	6	7
k. Design follow-up plans to measure my progress toward my goal(s) for my medication(s).	1	2	3	4	5	6	7
l. Carry out follow-up plans to measure my progress toward my goal(s) for my medication(s).	1	2	3	4	5	6	7
m. Answer any questions or concerns I may have.	1	2	3	4	5	6	7
n. Make sure that I understand the information given to me.	1	2	3	4	5	6	7

The next set of questions focus on what you believe your patients may think you would say. Continue to answer these questions the way you think your patients would. Remember to answer as if you are one of your own patients. Using the same scale, to what extent would your patients think you would agree or disagree with each statement.

3. (Patient) My pharmacists would say "...": (Repeat this phrase for each of the statements in this section)

a. "I think it would be beneficial for my patients if I were to explain to them how to use their medications."	1	2	3	4	5	6	7
b. "I think it would be beneficial for my patients if I were to tell them about other drugs which may cause problems with their medications."	1	2	3	4	5	6	7
c. "I think it would be beneficial for my patients if I were to tell them about possible side effects of their medications."	1	2	3	4	5	6	7
d. "I think it would be beneficial for my patients if I were to ask them if they have questions to ask of me."	1	2	3	4	5	6	7
e. "I think it would be beneficial for my patients if I were to ask them questions to find out how well they think the medications they are taking are working."	1	2	3	4	5	6	7

f. "I think it would be beneficial for my patients if I were to ask them questions to find out if they might be having any problems with their medications."	1	2	3	4	5	6	7
g. "I think it would be beneficial for my patients if I were to check their records for potential problems with their medications."	1	2	3	4	5	6	7
h. "I think it would be beneficial for my patients if I were to carry out plans to solve (or prevent) problems with their medications."	1	2	3	4	5	6	7
i. "I think it would be beneficial for my patients if I were to ask them what they want to achieve by taking their medications."	1	2	3	4	5	6	7
j. "I think it would be beneficial for my patients if I were task them questions to figure out if their goals for the medications are being reached."	1	2	3	4	5	6	7
k. "I think it would be beneficial for my patients if I were to design follow-up plans to measure their progress toward their goals for their medications."	1	2	3	4	5	6	7
l. "I think it would be beneficial for my patients if I were to carry out the follow-up plans to measure their progress toward their goals for their medications."	1	2	3	4	5	6	7
m. "I think it would be beneficial for my patients if I were to answer any questions or concerns they may have."	1	2	3	4	5	6	7
n. "I think it would be beneficial for my patients if I were to make sure that they understand the information given to them."	1	2	3	4	5	6	7

Now we would like to ask you some questions about activities that you may perform in your practice.

4. Think about the last five (5) patients/customers of your who presented a new prescription used to treat a chronic condition such as asthma or diabetes. Please indicate how many of these five patients you provided the following services to:

a. Ask the patient to describe his/her medical condition, including a description of medical problems and symptomatology.	5	4	3	2	1	None
b. Document information about the patient's medical conditions on written records, computerized notes or by other formal mechanism in a form that could be read and interpreted by another health care practitioner in my absence.	5	4	3	2	1	None
c. Document all medications currently being taken by the patient on written records, computerized notes or by other formal mechanisms in a form that could be read and interpreted by another health care practitioner in my absence.	5	4	3	2	1	None
d. Ask the patient what he/she wants to achieve from the drug therapy.	5	4	3	2	1	None
e. Document the desired therapeutic objectives for the patient.	5	4	3	2	1	None
f. Check the patient's records for potential drug-related problems.	5	4	3	2	1	None
g. Discuss the patient's drug therapy with him or her.	5	4	3	2	1	None
h. Verify that the patient understands the information I present to him or her.	5	4	3	2	1	None

5. Next, please think about the last five (5) patients/customers of your who presented a refill prescription used to treat a chronic condition such as asthma or diabetes. Please indicate how many of these five patients you provided the following services to:

a. Asked the patient questions to assess patterns of actual use of medication.	5	4	3	2	1	None
b. Asked the patient questions to find out if he/she is experiencing drug-related problems.	5	4	3	2	1	None
c. Asked the patient questions to find out about the perceived effectiveness of drugs he/she is taking.	5	4	3	2	1	None

d. Asked the patient questions to ascertain whether the therapeutic objectives are being reached.

5      4      3      2      1      None

6. Now, think about the last five (5) patients/customers of yours whom you discovered were experiencing drug-related problems. Please indicate how many of these five patients you provided the following services to:

a. Documented the drug-related problems, potential or actual, on written notes.

5      4      3      2      1      None

b. Documented the desired therapeutic objective(s) for each of the drug-related problems identified.

5      4      3      2      1      None

c. Implemented a strategy to resolve (or prevent) the drug-related problems.

5      4      3      2      1      None

d. Established follow-up plans to evaluate the patient's progress toward his/her drug therapy objectives.

5      4      3      2      1      None

e. Carried out the follow-up plans established for the patient's progress toward his/her drug therapy.

5      4      3      2      1      None

f. Documented any intervention made on the patient's file, prescription, report or medical record in a form that could be read and interpreted by another health care professional.

5      4      3      2      1      None

We just have a few more questions for demographic purposes only:

7. Gender (do not ask, just record)

Male.....1

Female.....2

8. How many years have you been practicing pharmacy?

1-5 years.....1

6-10 years.....2

11-15 years.....3

16-20 years.....4

Over 20 years.....5

9. Which pharmacy degree(s) do you have?

B.S.....1

Pharm.D.....2

Both B.S. and Pharm.D.....3

10. Do you hold an advance degree? Yes.....1  
No.....2
- 10a. If yes, what degree? \_\_\_\_\_
11. How many prescriptions are filled in an average day? \_\_\_\_\_
12. How would you describe your position? Employee pharmacist.....1  
Pharmacy manager.....2  
Pharmacy owner.....3  
Other(please specify)\_\_\_\_\_4
13. What year were you born? \_\_\_\_\_

THANK YOU FOR YOUR ASSISTANCE AND HAVE A NICE EVENING/DAY!!

### Patient Survey

The following sections ask you to answer questions from different points of view. First, you will be asked to complete the questions from your own point of view. Then you will be asked to complete the questions from the pharmacist's point of view.

First, let's start with you point of view.

The following questions ask you to think about different services your pharmacist can provide for you and how beneficial you think those services would be. As we read each statement think about whether or not you agree that the service would be beneficial for you. Then answer on the scale from one (1) to seven (7) (with 1 being strongly agree and 7 strongly disagree) which best represents your feeling.

1. PATIENT: I think it would be beneficial if my pharmacist were to: (repeat as necessary)

	strongly agree						strongly disagree
a. Explain to me how to use my medications.	1	2	3	4	5	6	7
b. Tell me about other drugs which may cause problems with my medications.	1	2	3	4	5	6	7
c. Tell me about possible side effects of my medications.	1	2	3	4	5	6	7
d. Ask me if I have any questions regarding my medications.	1	2	3	4	5	6	7
e. Ask me questions to find out if I might be having any problems with my medications.	1	2	3	4	5	6	7
f. Ask me questions to find out if I might be having any problems with my medications.	1	2	3	4	5	6	7
g. Check my records for potential problems with my medications.	1	2	3	4	5	6	7
h. Carry out plans to solve problems with my medications.	1	2	3	4	5	6	7
I. Ask me what I hope to achieve by taking my medications.	1	2	3	4	5	6	7
j. Ask me questions to figure out if my goals for the medications are being reached.	1	2	3	4	5	6	7
k. Design follow-up plans to measure my progress toward my goals for my medications.	1	2	3	4	5	6	7

l. Carry out follow-up plans to measure my progress toward goals for my medications.	1	2	3	4	5	6	7
m. Answer any questions or concerns I may have.	1	2	3	4	5	6	7
n. Make sure that I understand the information given to me.	1	2	3	4	5	6	7

### PHARMACIST'S POINT OF VIEW

Now, imagine what your pharmacist might think and answer the following questions from your pharmacist's point of view. To what extent do you, as a pharmacist, agree with the following statement? Please indicate which best represents your response on the scale from one (1) to seven (7) where 1 is strongly agree and 7 is strongly disagree. Remember, answer these as you think your pharmacist would.

2. PHARMACIST: I think it would be beneficial for my patients if I were to:

	strongly agree						strongly disagree
a. Explain to them how to use their medications.	1	2	3	4	5	6	7
b. Tell them about other drugs which may cause problems with their medications.	1	2	3	4	5	6	7
c. Tell them about possible side effects of their medications.	1	2	3	4	5	6	7
d. Ask them if they have any questions regarding their medications.	1	2	3	4	5	6	7
e. Ask them questions to find out if they might be having any problems with their medications.	1	2	3	4	5	6	7
f. Ask them questions to find out if they might be having any problems with their medications.	1	2	3	4	5	6	7
g. Check their records for potential problems with their medications.	1	2	3	4	5	6	7
h. Carry out plans to solve problems with their medications.	1	2	3	4	5	6	7
I. Ask them what they hope to achieve by taking their medications.	1	2	3	4	5	6	7

j. Ask them questions to figure out if their goals for the medications are being reached.	1	2	3	4	5	6	7
k. Design follow-up plans to measure their progress toward their goals for their medications.	1	2	3	4	5	6	7
l. Carry out follow-up plans to measure their progress toward goals for their medications.	1	2	3	4	5	6	7
m. Answer any questions or concerns they may have.	1	2	3	4	5	6	7
n. Make sure that they understand the information given to them.	1	2	3	4	5	6	7

Continue to answer these questions the way you think your pharmacist would. the following are things the pharmacist may think you would say. Remember to answer as if you are the pharmacist. Please indicate which best represents the extent to which you agree or disagree with the following statements (1=strongly agree and 7=strongly disagree).

PHARMACIST: My patients would say "I...." (Repeat this phrase for each of the statements in this section)

	strongly agree						strongly disagree
a. "I think it would be beneficial if my pharmacist were to explain to me how to use my medications."	1	2	3	4	5	6	7
b. "I think it would be beneficial if my pharmacist were to tell me about other drugs which may cause problems with my medications."	1	2	3	4	5	6	7
c. "I think it would be beneficial if my pharmacist were to tell me about possible side effects of my medications."	1	2	3	4	5	6	7
d. "I think it would be beneficial if my pharmacist were to ask me if I have any questions regarding my medications."	1	2	3	4	5	6	7
e. "I think it would be beneficial if my pharmacist were to ask me questions to find out if I might be having any problems with my medications."	1	2	3	4	5	6	7

f. "I think it would be beneficial if my pharmacist were to ask me questions to find out if I might be having any problems with my medications."	1	2	3	4	5	6	7
g. "I think it would be beneficial if my pharmacist were to check my records for potential problems with my medications."	1	2	3	4	5	6	7
h. "I think it would be beneficial if my pharmacist were to carry out plans to solve problems with my medications."	1	2	3	4	5	6	7
i. "I think it would be beneficial if my pharmacist were to ask me what I hope to achieve by taking my medications."	1	2	3	4	5	6	7
j. "I think it would be beneficial if my pharmacist were to ask me questions to figure out if my goals for the medications are being reached."	1	2	3	4	5	6	7
k. "I think it would be beneficial if my pharmacist were to design follow-up plans to measure my progress toward my goals for my medications."	1	2	3	4	5	6	7
l. "I think it would be beneficial if my pharmacist were to carry out follow-up plans to measure my progress toward goals for my medications."	1	2	3	4	5	6	7
m. "I think it would be beneficial if my pharmacist were to answer any questions or concerns I may have."	1	2	3	4	5	6	7
n. "I think it would be beneficial if my pharmacist were to make sure that I understand the information given to me."	1	2	3	4	5	6	7
4. Last we would like to know a bit more about you and the pharmacy you go to.							
a. How many prescription medications do you take on a regular basis? (please specify if more than 5)	0	1	2	3	4	5 or more	_____
b. In the past six months, how many new prescriptions have you had filled? (please specify if more than 5)	0	1	2	3	4	5 or more	_____
c. In the past six months, how many refill prescriptions have you had filled? (please specify if more than 5)	0	1	2	3	4	5 or more	_____

	0	1	2	3	4	5 or more
d. How many different pharmacist do you go to regularly? (please specify if more than 5)						_____
e. What factors do you consider when choosing a pharmacy?	_____					
	_____					
	_____					
f. Do you know the name of the pharmacist who usually fills your prescriptions?	Yes.....					1
	No.....					2
g. Does your pharmacist usually volunteer information about your medicine when you get a new prescription filled?	Yes.....					1
	No.....					2
h. Does your pharmacists usually ask if you are having any problems when you get a refill?	Yes.....					1
	No.....					2
I What type of pharmacy do you go to?	Discount chain (such as WalMart).....1					
	Drug chain (such as Eckerd's).....2					
	Independent store.....3					
	Grocery store (such as Albertson's).....4					
	Other.....5					
j. Could you please tell me your age?	18-29.....1					
	30-39.....2					
	40-49.....3					
	50-59.....4					
	60-69.....5					
	70+.....6					
	Refused.....99					
k. Could you please tell me your race?	Asian or Pacific Islander.....1					
	Black (non-Hispanic).....2					
	Hispanic.....3					
	Native American.....4					
	White.....5					
	Refused.....99					
l. Gender (don't ask, just record)	Female.....					1
	Male.....					2
m. What is the highest grade of school you have completed?	Grade school (grade _____).....1					
	Some high school.....2					
	High school degree.....3					
	Some college.....4					
	College degree.....5					
	Some graduate school.....6					
	Graduate or professional degree.....7					
	Refused.....99					

n. What was your approximate household  
income last year?

Under \$10,000.....	1
\$10,000-19,999.....	2
\$20,000-39,999.....	3
\$40,000-59,999.....	4
\$60,000-79,999.....	5
\$80,000-119,999.....	6
\$120,000+.....	7
Refused.....	99

THANK YOU FOR YOUR ASSISTANCE AND HAVE A NICE EVENING/DAY!!

## APPENDIX B REVISED QUESTIONNAIRES

### Pharmacist Survey

The purpose of the study is to see how well pharmacists and patients understand each other's perspectives and to use this information to improve understanding between pharmacists and patients. The following sections ask you to answer questions from different points of view. First, you will be asked to complete the questions from your own point of view. Then you will be asked to complete questions from your patients' point of view.

First, let's start with you point of view. I will read a list of statements to you about pharmaceutical care activities. Please tell me to what extent you agree or disagree with each statement on a scale of 1 to 10, with 1 being strongly disagree and 10 being strongly agree.

1. PHARMACIST: I think it would be beneficial for my patients if I were to:

	strongly disagree									strongly agree
a. Explain to them how to use their medications.	1	2	3	4	5	6	7	8	9	10
b. Design and carry out follow-up plans to measure their progress toward their goals for their medications.	1	2	3	4	5	6	7	8	9	10
c. Ask them questions to find out if they might be having any problems with their medications.	1	2	3	4	5	6	7	8	9	10
d. Make sure that they understand the information given to them.	1	2	3	4	5	6	7	8	9	10
e. Ask them questions to figure out if their goals for the medications are being reached.	1	2	3	4	5	6	7	8	9	10
f. Carry out plans to solve (or prevent) problems with their medications.	1	2	3	4	5	6	7	8	9	10

g. Tell them about other drugs which may cause problems with their medications.

1    2    3    4    5    6    7    8    9    10

### Patient's Point of View

Now, try to imagine what your patients might think and answer the following questions from the patient's point of view. Try to answer as you think a typical patient who comes into your pharmacy would answer. To what extent do you, as a patient, agree with the following statements? Please indicate which best represents your response on the scale from one (1) to ten (10), where 10 is strongly agree and 1 is strongly disagree. Remember, answer these as you think your patients would.

2. PATIENT: I think it would be beneficial if my pharmacist were to:

	strongly disagree					strongly agree				
a. Explain to me how to use my medication(s).	1	2	3	4	5	6	7	8	9	10
b. Design and carry out follow-up plans to measure my progress toward my goals for my medications.	1	2	3	4	5	6	7	8	9	10
c. Ask me questions to find out if I might be having any problems with my medications.	1	2	3	4	5	6	7	8	9	10
d. Make sure that I understand the information given to me.	1	2	3	4	5	6	7	8	9	10
e. Ask me questions to figure out if my goals for the medications are being reached.	1	2	3	4	5	6	7	8	9	10
f. Carry out plans to solve (or prevent) problems with my medications.	1	2	3	4	5	6	7	8	9	10
g. Tell me about other drugs which may cause problems with my medications.	1	2	3	4	5	6	7	8	9	10

The next set of questions focus on what you believe your patients may think you would say. continue to answer these questions the way you think your patients would. Remember to answer as if you are one of your own patients. Using the same scale, from 1 to 10, please indicate to what extent would your patients think you would agree or disagree with each statement.

3. PATIENT: My pharmacists would say "I think it would be beneficial for my patients if I...." (Repeat this phrase for each of the statements in this section)

	strongly disagree					strongly agree				
a. "...were to explain to them how to use their medications."	1	2	3	4	5	6	7	8	9	10
b. "...were to design and carry out follow-up plans to measure their progress toward their goals for their medications."	1	2	3	4	5	6	7	8	9	10
c. "...were to ask them questions to find out if they might be having any problems with their medications."	1	2	3	4	5	6	7	8	9	10
d. "...were to make sure that they understand the information given to them."	1	2	3	4	5	6	7	8	9	10
e. "...were to ask them questions to figure out if their goals for the medications are being reached."	1	2	3	4	5	6	7	8	9	10
f. "...were to carry out plans to solve (or prevent) problems with their medications."	1	2	3	4	5	6	7	8	9	10
g. "...were to tell them about other drugs which may cause problems with their medications."	1	2	3	4	5	6	7	8	9	10

Now we would like to ask you some questions about activities that you may perform in your practice.

4. Think about the last five (5) patients/customers of your who presented a new prescription used to treat a chronic condition such as asthma or diabetes. Please indicate how many of these five patients you provided the following services to:

a. Ask the patient to describe his/her medical condition, including a description of medical problems and symptomatology.	5	4	3	2	1	None
b. Document information about the patient's medical conditions on written records, computerized notes or by other formal mechanism in a form that could be read and interpreted by another health care practitioner in my absence.	5	4	3	2	1	None

c. Document all medications currently being taken by the patient on written records, computerized notes or by other formal mechanisms in a form that could be read and interpreted by another health care practitioner in my absence.

5    4    3    2    1    None

d. Ask the patient what he/she wants to achieve from the drug therapy.

5    4    3    2    1    None

e. Document the desired therapeutic objectives for the patient.

5    4    3    2    1    None

f. Check the patient's records for potential drug-related problems.

5    4    3    2    1    None

g. Discuss the patient's drug therapy with him or her.

5    4    3    2    1    None

h. Verify that the patient understands the information I present to him or her.

5    4    3    2    1    None

5. Next, please think about the last five (5) patients/customers of your who presented a refill prescription used to treat a chronic condition such as asthma or diabetes. Please indicate how many of these five patients you provided the following services to:

a. Asked the patient questions to assess patterns of actual use of medication.

5    4    3    2    1    None

b. Asked the patient questions to find out if he/she is experiencing drug-related problems.

5    4    3    2    1    None

c. Asked the patient questions to find out about the perceived effectiveness of drugs he/she is taking.

5    4    3    2    1    None

d. Asked the patient questions to ascertain whether the therapeutic objectives are being reached.

5    4    3    2    1    None

6. Now, think about the last five (5) patients/customers of yours whom you discovered were experiencing drug-related problems. Please indicate how many of these five patients you provided the following services to:

a. Documented the drug-related problems, potential or actual, on written notes.

5    4    3    2    1    None

b. Documented the desired therapeutic objective(s) for each of the drug-related problems identified.

5    4    3    2    1    None

c. Implemented a strategy to resolve (or prevent) the drug-related problems.	5	4	3	2	1	None
d. Established follow-up plans to evaluate the patient's progress toward his/her drug therapy objectives.	5	4	3	2	1	None
e. Carried out the follow-up plans established for the patient's progress toward his/her drug therapy.	5	4	3	2	1	None
f. Documented any intervention made on the patient's file, prescription, report or medical record in a form that could be read and interpreted by another health care professional.	5	4	3	2	1	None

We just have a few more questions for demographic purposes only:

7. Gender (do not ask, just record)	Male.....1
	Female.....2
8. How many years have you been practicing pharmacy?	1-5 years.....1
	6-10 years.....2
	11-15 years.....3
	16-20 years.....4
	Over 20 years.....5
9. Which pharmacy degree(s) do you have?	B.S.....1
	Pharm.D.....2
	Both B.S. and Pharm.D.....3
10. Do you hold an advance degree?	Yes.....1
	No.....2
10a. If yes, what degree?	_____
11. How many prescriptions are filled in an average day?	_____
12. How would you describe your position?	Employee pharmacist.....1
	Pharmacy manager.....2
	Pharmacy owner.....3
	Other(please specify)_____4
13. What year were you born?	_____

THANK YOU FOR YOUR ASSISTANCE AND HAVE A NICE EVENING/DAY!!

### Patient Survey

The following sections ask you to answer questions from different points of view. First, you will be asked to complete the questions from your own point of view. Then you will be asked to complete the questions from your pharmacist's point of view.

First let's start with your point of view.

The following questions ask you to think about different services your pharmacist can provide for you and how beneficial you think those services would be. As we read each statement, think about whether or not you agree that the service would be beneficial for you. Then answer on the scale from one (1) to ten (10) (where 10 is strongly agree and 1 is strongly disagree), which best represents your feeling.

PATIENT: I think it would be beneficial if my pharmacist were to:

	strongly disagree									strongly agree
a. Explain to me how to use my medications.	1	2	3	4	5	6	7	8	9	10
b. Design and carry out follow-up plans to measure their progress toward my goals for my medications.	1	2	3	4	5	6	7	8	9	10
c. Ask me questions to find out if I might be having any problems with my medications.	1	2	3	4	5	6	7	8	9	10
d. Make sure that I understand the information given to me.	1	2	3	4	5	6	7	8	9	10
e. Ask them questions to figure out if my goals for my medications are being reached.	1	2	3	4	5	6	7	8	9	10
f. Carry out plans to solve (or prevent) problems with my medications.	1	2	3	4	5	6	7	8	9	10
g. Tell me about other drugs which may cause problems with my medications.	1	2	3	4	5	6	7	8	9	10

#### PHARMACIST'S POINT OF VIEW

Now, imagine what your pharmacist might think and answer the following questions from your pharmacist's point of view. To what extent do you, as a pharmacist, agree with the following statements? Please indicate which best represents your response on the scale from one (1) to ten (10) where 10 is strongly agree and 1 is strongly disagree. Remember, answer these as you think your pharmacist would.

PHARMACIST: I think it would be beneficial for my patients if I were to:

	strongly disagree					strongly agree				
a. Explain to them how to use their medications.	1	2	3	4	5	6	7	8	9	10
b. Design and carry out follow-up plans to measure their progress toward their goals for their medications.	1	2	3	4	5	6	7	8	9	10
c. Ask them questions to find out if they might be having any problems with their medications.	1	2	3	4	5	6	7	8	9	10
d. Make sure that they understand the information given to them.	1	2	3	4	5	6	7	8	9	10
e. Ask them questions to figure out if their goals for the medications are being reached.	1	2	3	4	5	6	7	8	9	10
f. Carry out plans to solve (or prevent) problems with their medications.	1	2	3	4	5	6	7	8	9	10
g. Tell them about other drugs which may cause problems with their medications.	1	2	3	4	5	6	7	8	9	10

This last section asks you to answer these questions the way you think your pharmacist would. The following statements are things the pharmacist may say. Using the same scale from one (1) to ten (10), please indicate which best represents the extent to which you, as the pharmacist, agree or disagree with the following statements.

3. PHARMACIST: My patients would say "I think it would be beneficial if my pharmacist..." (Repeat this phrase for each of the statements in this section).

	strongly disagree					strongly agree				
a. "...were to explain to me how to use my medications."	1	2	3	4	5	6	7	8	9	10
b. "...were to design and carry out follow-up plans to measure their progress toward my goals for my medications."	1	2	3	4	5	6	7	8	9	10

- c. "...were to ask me questions to find out if I might be having any problems with my medications." 1 2 3 4 5 6 7 8 9 10
- d. "...were to make sure that I understand the information given to me." 1 2 3 4 5 6 7 8 9 10
- e. "...were to ask them questions to figure out if my goals for my medications are being reached." 1 2 3 4 5 6 7 8 9 10
- f. "...were to carry out plans to solve (or prevent) problems with my medications." 1 2 3 4 5 6 7 8 9 10
- g. "...were to tell me about other drugs which may cause problems with my medications." 1 2 3 4 5 6 7 8 9 10

This is the last section of the interview. We are almost done. We would like to know a little bit more about you and the pharmacy you go to.

- a. How many prescription medications do you take on a regular basis? 0 1 2 3 4 5 or more  
(please specify if more than 5) \_\_\_\_\_
- b. In the past six months, how many new prescriptions have you had filled? 0 1 2 3 4 5 or more  
(please specify if more than 5) \_\_\_\_\_
- c. In the past six months, how many refill prescriptions have you had filled? 0 1 2 3 4 5 or more  
(please specify if more than 5) \_\_\_\_\_
- d. How many different pharmacies do you go to regularly? 0 1 2 3 4 5 or more  
(please specify if more than 5) \_\_\_\_\_

e. What factors do you consider when choosing a pharmacy?

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f. Do you know the name of the pharmacist who usually fills your prescriptions?

Yes.....1  
No.....2

g. Does your pharmacist usually volunteer information about your medicine when you get a new prescription filled?

Yes.....1  
No.....2

h. Does your pharmacist usually ask if you are having any problems when you get a refill?	Yes.....1 No.....2
i. What type of pharmacy do you go to?	Discount chain (such as WalMart).....1 Drug chain (such as Eckerd's).....2 Independent store.....3 Grocery store (such as Albertson's).....4 Other.....5
j. Could you please tell me your age?	18-29.....1 30-39.....2 40-49.....3 50-59.....4 60-69.....5 70+.....6 Refused.....99
k. Could you please tell me your race?	Asian or Pacific Islander.....1 Black (non-Hispanic).....2 Hispanic.....3 Native American.....4 White.....5 Refused.....99
l. Gender (don't ask, just record)	Female.....1 Male.....2
m. What is the highest grade of school you have completed?	Grade school (grade _____).....1 Some high school.....2 High school degree.....3 Some college.....4 College degree.....5 Some graduate school.....6 Graduate or professional degree.....7 Refused.....99
n. What was your approximate household income last year?	Under \$10,000.....1 \$10,000-19,999.....2 \$20,000-39,999.....3 \$40,000-59,999.....4 \$60,000-79,999.....5 \$80,000-119,999.....6 \$120,000+.....7 Refused.....99

THANK YOU FOR YOUR ASSISTANCE AND HAVE A NICE EVENING/DAY!!

## REFERENCES

- Alkhawajah, AM and Eferakeya, AE. 1992. "The role of pharmacists in patients' education on medication," Public Health. 106(3): 321-237.
- Alperson, BL and Friedman, WJ. 1983. "Some aspects of the interpersonal phenomenology of heterosexual dyads with respect to sex role stereotypes," Sex Roles. 9: 453-474.
- Apple, WS. 1967. "Pharmacy's new prescription evolution," Journal of the American Pharmaceutical Association. 7(9): 474-477.
- Ascione, FL and Shimp, LA. 1984. "The effectiveness of four education strategies in the elderly," Drug Intelligence and Clinical Pharmacy. 18(11): 926-931.
- Assa, MT. 1995. "Pharmacists' perceptions of the barriers to pharmacist-patient communication," Unpublished manuscript, Department of Pharmacy Health Care Administration, University of Florida. Gainesville, FL.
- Badejogbin, FT. 1994. Implementation of Pharmaceutical Care in Community Practice: Development of a Theoretical Framework for Implementation. Doctoral Dissertation, Department of Pharmacy Health Care Administration, University of Florida. Gainesville, FL.
- Bearden, WO, Netemeyer, RG and Teel, JE. 1989. "Measurement of consumer susceptibility to interpersonal influence," Journal of Consumer Research, 15: 473-481.
- Berardo, DH, Kimberlin, CL and Barnett, CW . 1989. "Observational research on patient education activities of community pharmacists," Journal of Social and Administrative Pharmacy. 6 (1): 21-30.
- Brown, BW, Brauner, C, Chan, A, Gutierrez, D, Herson, J, Lovato, J and Polskey, J. 1993. Calculations for Sample Sizes and Related Problems Version 4.0. University of Texas, Anderson Cancer Center, Department of Biomathematics: Houston, TX.
- Borgsdorf, LR, Miano, JS, and Knapp, KK. 1994. "Pharmacist-managed medication review in a managed care system," American Journal of Hospital Pharmacy. 51(6): 772-777.

Boyd, JR, Covington, TR, Stanasek, WF and Coussons, RT. 1974. "Drug defaulting II: Analysis of noncompliance patterns," American Journal of Hospital Pharmacy. 31(5): 485-491.

Campbell, RK, Baker, D, Jinks, M and Evenson-St. Armand, L. 1989. "Compliance with Washington state's professional practice regulations: 1974 vs. 1987," American Pharmacy. 29(5): 350-356.

Carroll, NV and Gagnon, JP. 1984a. "Pharmacists' perceptions of consumer demand for patient-oriented pharmacy services," Drug Intelligence and Clinical Pharmacy. 18(7-8): 640-644.

Carroll, NV and Gagnon, JP. 1984b. "Consumer demand for patient-oriented pharmacy services," American Journal of Public Health. 74(6): 609-11

Chaffee, SH and McLeod, JM. 1968. "Sensitization in panel design: a coorientation experiment," Journalism Quarterly. 45(4): 661-669.

Chewning, B and Schommer, JC. 1996. "Increasing clients' knowledge of community pharmacists' roles," Pharmaceutical Research. 13(9): 1299-1304.

Christensen, L and Wallace, L. 1976. "Perceptual accuracy as a variable in marital adjustment," Journal of Sex and Marital Therapy. 2(2): 130-136.

Clinite, JC and Kabat, HF. 1976. "Improving patient compliance," Journal of the American Pharmaceutical Association. 16(2): 74-76,85.

Cocerham, WC. 1992. Medical Sociology. Englewood Cliffs, NJ: Prentice Hall.

Cooley, CH. 1902. Human Nature and the Social Order. New York: Charles Scribner.

Corsini, RJ. 1956. "Understanding and similarity in marriages", Journal of Abnormal and Social Psychology. 52: 327-332.

Crocker, L and Algina, J. 1986. Introduction to Classical and Modern Test Theory. Orlando, FL: Holt, Rinehart and Winston, Inc.

DeTullio PL and Corson, ME. 1987. "Effect of pharmacist counseling on ambulatory patients' use of aerosolized bronchodilators," American Journal of Hospital Pharmacy. 44(8): 1802-1806.

DeYoung, M. 1996. "Research on the effects of pharmacist-patient communication in institutions and ambulatory care sites, 1969-1994," American Journal of Health Systems Pharmacy. 53(1): 1277-1291.

Dillman, DA. 1978. Mail and Telephone Surveys: The Total Design Method. New York: John Wiley and Sons.

Drewery, J. 1969. "An interpersonal perception technique," British Journal of Medical Psychology. 42(2): 171-181.

Drewery, J. and Rae, JB . 1969. "A group comparison of alcoholic and non-alcoholic marriages using the interpersonal perception technique," British Journal of Psychiatry. 115(520): 287-300.

Dymond, R. 1954. "Interpersonal perception and marital happiness", Canadian Journal of Psychology. 8: 164-171.

Edwards, M and Pathy, MSJ. 1984. "Drug counseling in the elderly and predicting compliance," Practitioner. 228(1389): 291-300.

Enlund, H, Vainio, K, Wallenius, S and Poston, JW. 1991. "Adverse drug effects and the need for drug information," Medical Care. 29(6): 558-564.

Erstad, BL, Draugalis, JR, Waldrop, SM, Scheure, L and Namanny, MD. 1994. "Patients' perceptions of increased pharmacy contact." Pharmacotherapy. 14(6): 724-728.

Fitzpatrick, MA. 1982. "The instrumental and expressive domains of marital communication," Human Communication Research. 8(3): 195-213.

Forstrom, MJ, Ried, LD, Stergachis, AS and Corliss, DA. 1990. "Effect of a clinical pharmacist program on the cost of hypertension treatment in an HMO family practice clinic." Drug Intelligence and Clinical Pharmacy. 24(3): 304-309.

Gagnon, JP. 1978. "Store-distributed surveys as a source of consumer feedback on pharmacy services," Journal of Consumer Affairs. 12: 333-342.

Gagnon, JP. 1994. "Consumers' views toward pharmacy," Journal of Pharmaceutical Marketing and Management. 8(4): 87-96.

Gotsch, AR and Liguori, S. 1982 "Knowledge, attitude, and compliance dimensions of antibiotic therapy with PPIs," Medical Care. 20(6): 581-595.

Hammarlund, ER, Ostrom, JR and Kethley, AJ. 1985. "The effects of drug counseling and other educational strategies on drug utilization of the elderly". Medical Care. 23(2): 165-170.

Heider, F. 1959. The Psychology of Interpersonal Relations. New York: John Wiley and Sons.

Hepler, CD and Strand, LM. 1990. "Opportunities and responsibilities in pharmaceutical care," American Journal of Hospital Pharmacy. 47(3): 533-543.

Herrier, R and Boyce, R. 1994. "Why aren't more pharmacists counseling?" American Pharmacy. 34(11): 22-23.

Hirsch, JD, Gagnon, JP and Camp, R. 1990. "Value of pharmacy services: Perceptions of consumers, physicians, and third party prescription plan administrators," American Pharmacy. 30(3): 140-145.

Isaacs, S. 1952. "The nature and function of phantasy," in J. Riviere (ed.) Developments in Psychoanalysis. London: Hogarth Press.

Johnston, M, Clarke, A, Mundy, K, Cromarty, E and Ridout, K. 1986. "Facilitating comprehension of discharge medications in elderly patients," Age and Ageing. 15(5): 304-306.

Kimberlin, CL and Berardo, DH. 1987. "A comparison of patient education methods used in community pharmacies," Journal of Pharmaceutical Marketing and Management 1(4): 75-94.

Kimberlin, CL, Berardo, DH, Pendergast, JF and McKenzie, LC. 1993. "Effects of an education program for community pharmacists on detecting drug-related problems in elderly patients," Medical Care. 31(5): 451-468.

Kirking, DM. 1982. "Pharmacists' perceptions of their patient counseling activities," Contemporary Pharmacy Practice. 5(4): 230-238.

Knapp, D, Wolf, H, Knapp, D and Rudy, T. 1969. "An experimental analysis...the pharmacist as a drug advisor," Journal of the American Pharmaceutical Association. 9(10): 502-505, 543.

Knowlton, CH and Knapp, DA. 1994. "Community pharmacists help HMO cut drug costs," American Pharmacy. 34(1): 36-42.

Knudson, RM, Sommers, AA and Golding, SL. 1980. "Interpersonal perception and mode of resolution in marital conflict," Journal of Personality and Social Psychology. 38(5): 751-761.

Kottas, LJ. 1969. "Informal use of the interpersonal perception method in marital therapy," Canadian Psychiatric Association Journal. 14(1): 11-14.

Laing, RD. 1961. The Self and Others. Chicago, IL: Quadrangle Books.

Laing, RD, Phillipson, H and Lee, AR. 1966. Interpersonal Perception: A Theory and a Method of Research. London: Tavistock Publications.

Lipton, H and Bird, J. 1994. "The impact of clinical pharmacists' consultations on geriatric patients' compliance and medical care use: a randomized controlled trial," Gerontologist. 34(3): 307-315.

Madden, EL. 1973. "Evaluation of outpatient pharmacy patient counseling," Journal of the American Pharmaceutical Association. 13(8): 437-443.

Martin, S. 1993. "Pharmacists number more than 190,000 in United States," American Pharmacy. 33(7): 22-23

Mason, HL and Svarstad, BL. 1984. "Medication counseling behaviors and attitudes of rural community pharmacists", Drug Intelligence and Clinical Pharmacy. 18(5): 409-414.

McBean, BJ and Blackburn, JL. 1982. "An evaluation of four methods of pharmacist-conducted patient education," Canadian Pharmacy Journal. 115(5): 167-172.

McCall, GJ and Simmons, JL. 1966. Identities and Interactions. New York: Free Press.

McCall, MM. 1970. "Boundary rules in relationships and encounters," in G. McCall (ed.) Social Relationships. Chicago, IL: Aldine-Atherton.

McKenney, JM, Slining, JM, Henderson, HR, Devins, D and Barr, M. 1973. "The effect of clinical pharmacy services on patients with essential hypertension," Circulation. 48: 1104-1111.

McLeod, JM and Chaffee, SH. 1973. "Interpersonal approaches to communication research," American Behavioral Scientist. 16: 469-500.

Meade, V. 1992. "APhA survey looks at patient counseling: Pharmacists say their role in patient counseling is increasing, but they would like to devote even more time to it," American Pharmacy. 32(4): 27-29.

Meade, V. 1994. "Patients satisfied with pharmacy services, survey shows," American Pharmacy. 34(7): 26-28.

Miller, MJ and Ortmeier, BG. 1995. "Factors influencing the delivery of pharmacy services," American Pharmacy. 35(1): 39-45.

Morris, LA. 1982. "A survey of patients' receipt of prescription drug information," Medical Care. 20(6): 596-605.

Murstein, BI and Beck, GD. 1972. "Person perception, marriage adjustment and social desirability," Journal of Consulting and Clinical Psychology. 39(3): 396-403.

National Association of Boards of Pharmacy. 1996. Survey of Pharmacy Law. Park Ridge, IL: National Association of Boards of Pharmacy.

Nelson, AR, Zelnio, RN and Beno, CE. 1984. "Clinical pharmaceutical services in retail practice II. Factors influencing the provision of services," Drug Intelligence and Clinical Pharmacy. 18(12): 992-996.

Newcomb, TM. 1953. "An approach to the study of communicative acts," Psychological Review. 60(6): 393-404.

Newmark, CA, Woody, G and Ziff, D. 1977. "Understanding and similarity in relation to marital satisfaction," Journal of Clinical Psychology. 33(1): 83-86.

Norwood, GJ. 1975. "Impact of a clinical pharmacist's emphasis on patient communication on the patient's attitude toward pharmacy," Drug Intelligence and Clinical Pharmacy. 9(11): 601-604.

Norwood, GJ, Seibert, JJ and Gagnon, JP. 1976. "Attitudes of rural consumers and physicians toward expanded roles for pharmacists," Journal of American Pharmaceutical Association. 16(10): 551-554.

Nunnally, JC. 1978. Psychometric Theory. New York: McGraw-Hill.

Oliver, CH and Barnes, BH. 1983. "Communication attitudes, practices and training needs of working pharmacists," American Journal of Pharmaceutical Education. 47(2): 119-122.

Opdycke, RA, Ascione, FL, Shimp LA and Rosen, RI. 1992. "A systematic approach to educating elderly patients about their medication," Patient Education and Counseling. 19(1): 43-60.

- Ortiz, M, Thomas, R, Walker, WL and Beed, TW. 1984. "Attitudes of pharmacists towards patient counseling: Findings of a pharmacy practice foundation survey," The Australian Journal of Pharmacy. 65(8): 658-663.
- Perri, M, Kotzan, J, Pritchard, L, Ozburn, W and Francisco, G. 1995. "OBRA '90: The impact on pharmacists and patients," American Pharmacy. 35(2): 24-28, 65.
- Puckett, FJ, White, SJ, Mossberg, HJ and Matchett, JA. 1978. "Pharmacist-patient counseling practices," Contemporary Pharmacy Practice. 1(2): 67-71.
- Raisch, DW. 1993. "Barriers to providing cognitive services," American Pharmacy. 33(12): 54-58.
- Rantucci, MJ and Segal, RJ. 1986. "Over-the counter medication: Outcome and effectiveness of patient counseling," Journal of Social and Administrative Pharmacy. 3(3): 81-91.
- Reardon, KK. 1987. "The history in interpersonal communication," in Interpersonal Communication: Where Minds Meet. Belmont, CA: Wadsworth.
- Roden, SM, Harvey, PG, Mayer, PP and Spence, LL. 1985. "Evaluation of two techniques to improve drug compliance in the elderly," Journal of Clinical Experience in Gerontology. 7: 71-82.
- Ross, SR, White, SJ, Hogan, LC and Godwin, HN. 1981. "The effect of a mandatory patient counseling regulation on the counseling practices of pharmacy practitioners," Contemporary Pharmacy Practice. 4(2): 64-68.
- Rowles, B, Keller, S and Gavin, P. 1974. "The pharmacist as compounder and consultation," Drug Intelligence and Clinical Pharmacy. 8: 242-244.
- Rumore, MM, Feifer, S, and Rumore, JS. 1995. "New York City pharmacists and OBRA '90: One year later," American Pharmacy. 35(2): 29-24,66.
- Schommer, JC. 1994a. "Effect of interrole congruence on pharmacist-patient communication," Health Communication. 6(4): 297-309.
- Schommer, JC. 1994b. "Ohio pharmacists' conceptual views and experiences regarding patient counseling," Drug Information Journal. 28(3): 765-775.
- Schommer, JC. 1995. "Higher levels of consultation services increase patient satisfaction," American Pharmacy. 35(8): 33-39.

Schommer, JC and Wiederholt, JB. 1994a. "Pharmacists' perceptions of patients' needs for counseling," American Journal of Hospital Pharmacy. 51(4): 478-85.

Schommer, JC and Wiederholt, JB. 1994b. "Pharmacists' views of patient counseling," American Pharmacy. 34(7): 46-53.

Schullo, SA and Alperson, BL. 1984. "Interpersonal phenomenology as a function of sexual orientation, sex, sentiment, and trait categories in long-term dyadic relationships," Journal of Personality and Social Psychology. 47(5): 983-1002.

Sharpe, TR and Mikeal, RL. 1974. "Patient compliance with antibiotic regimens," American Journal of Hospital Pharmacy. 31(5): 479-484

Sillars, AL, Folwell, AL, Hill, KC, Maki, BK, Hurst, AP and Casano, RA. 1994. "Marital communication and the persistence of misunderstanding," Journal of Social and Personal Relationships. 11: 611-617.

Sillars, AL and Scott, MD. 1983. "Interpersonal perception between intimates: An integrative review," Human Communication Research. 10(1): 153-176.

Sillars, AL, Pike, GR, Jones, TJ and Redmon, K.. 1983. "Communication and conflict in marriage," in RN Bostrum (ed.) Communication Yearbook 7. Berverly Hills, CA: Sage.

Slama, PJ and Gurwich, EL. 1978. "Effect of pharmacist consultation on medication compliance," Contemporary Pharmacy Practice. 1(2): 71-77.

Stewart, JE, Kabat, HF and Purchit, A. 1977. "Consumer-pharmacist congruence--understanding consumer wants and needs," Journal of the American Pharmaceutical Association. 17(6): 358-361.

Stover, KA. 1996. "Consumers want more pharmacy services, national survey finds," Pharmacy Today, 2 (11): 1, 9.

Stratton, TP and Stewart, EE. 1991. "The role of the community pharmacist in providing drug and health information: A pilot survey among the public, physicians and pharmacists," Journal of Pharmaceutical Marketing and Management. 5(4): 3-26.

Stuckert, R. 1963. "Role perception and marital satisfaction--a configuration approach," Marriage and Family Living. 25: 415-419.

Sullins, ES. 1992. "Interpersonal perception between same-sex friends," Journal of Social Behavior and Personality. 7(3): 395-414.

Taguiri, R, Brunder, JS and Blake, RR. 1958. "On the relation between the feelings and perception of feelings among members of small groups," pp. 110-116 in E. Maccoby et al. (eds.) Readings in Social Psychology. New York: Henry Holt.

U.S. Department of Commerce Bureau of the Census. 1990. Census of the Population. General Population Characteristics-Florida.

U.S. Government Printing Office. 1990. Omnibus Budget Reconciliation Act of 1990, Washington, DC, 152-171.

Wandless, I and Whitmore, J. 1981. "The effect of counselling by a pharmacist on drug compliance in elderly patients," Journal of Clinical and Hospital Pharmacy. 6 (1): 51-56.

Watkins, R and Norwood, J. 1977. "Impact of environment and age on the quality of consultant behavior among pharmacists," American Journal of Pharmaceutical Education. 41: 19-22.

Wichstrom, L and Holte, A. 1993. "Relationship control and interpersonal perception in marriage," Scandinavian Journal of Psychology. 34:149-160.

Wiederholt, JB, Clarridge, BR and Svarstad, BL. 1992. "Verbal consultation regarding prescription drugs: Findings from a statewide study," Medical Care. 30(2): 159-173.

Wilmot, WW. 1975. Human Communication. Menlo Park, CA: Addison-Wesley.

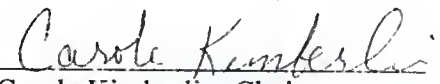
Zelnio, RN, Nelson, AA and Beno, CE. 1984. "Clinical pharmaceutical services in retail practice I. Pharmacists' willingness and abilities to provide services," Drug Intelligence and Clinical Pharmacy. 18(11): 917-922.

## BIOGRAPHICAL SKETCH


Michelle Tal Assa was born in Milwaukee, Wisconsin, on January 8, 1969. She received her Bachelor of Science degree in pharmacy in May of 1992 from the University of Colorado. Her professional background includes both hospital and community pharmacy experience.

Her primary research interests include the implementation of pharmaceutical care in the community setting with emphasis on the communication which occurs between pharmacists and patients, and gender issues in health care.

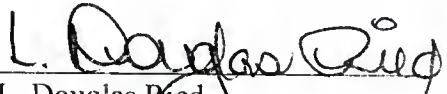
I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

  
Carole Kimberlin, Chair  
Professor of Pharmacy Health Care  
Administration

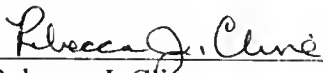
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Donna H. Berardo  
Associate Professor of Pharmacy Health  
Care Administration

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

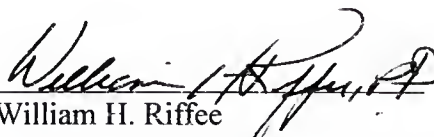
  
L. Douglas Ried  
Associate Professor of Pharmacy Health  
Care Administration

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

  
Rebecca J. Cline  
Professor of Communication Processes  
and Disorders

This dissertation was submitted to the Graduate Faculty of the College of Pharmacy and to the Graduate School and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

August, 1997



William H. Riffie  
Dean, College of Pharmacy

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Karen A. Holbrook  
Dean, Graduate School

UNIVERSITY OF FLORIDA



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